L. B. BOREIKO.

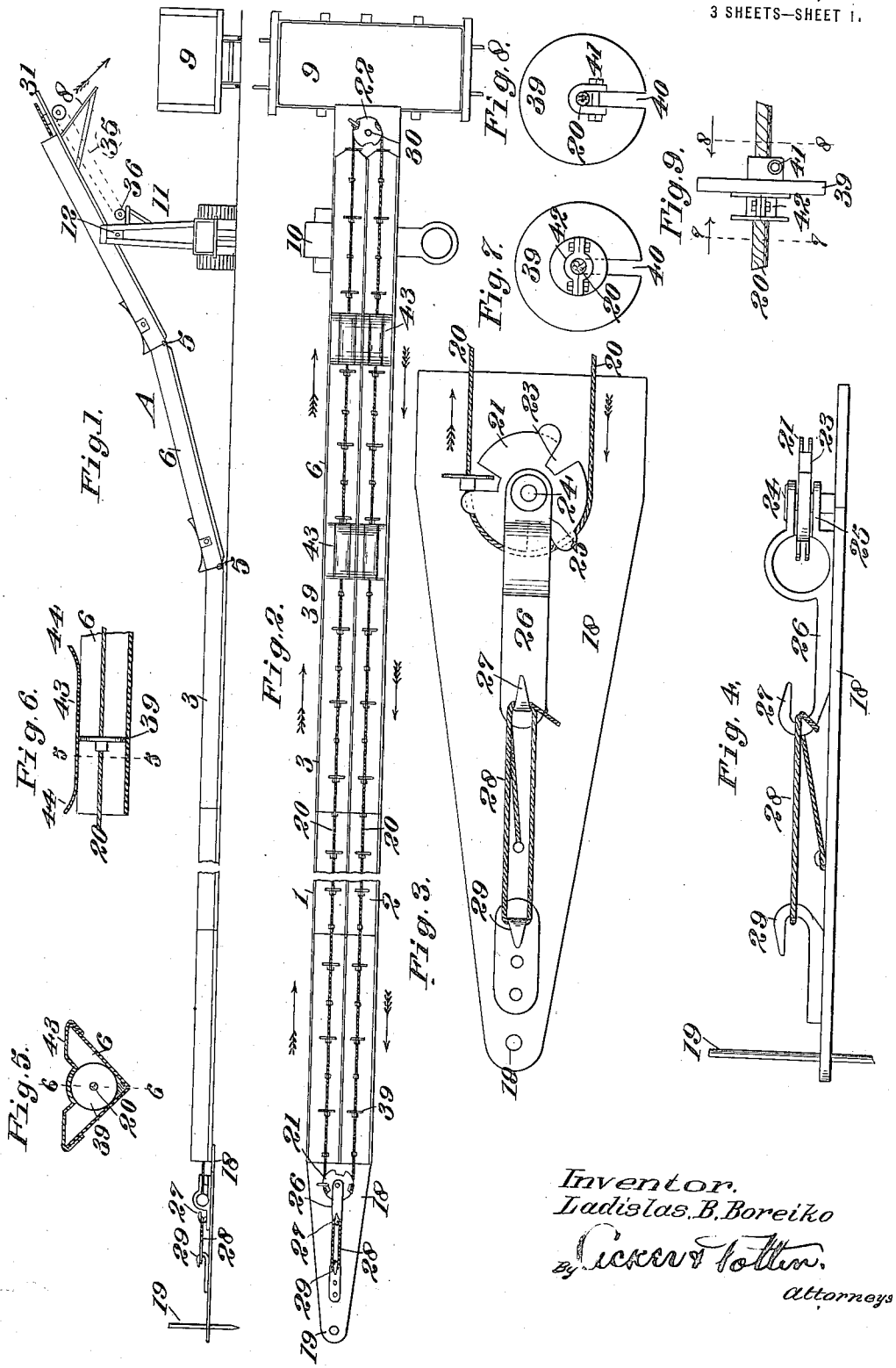
LOADING AND TRANSPORTING APPARATUS.

APPLICATION FILED MAY 4, 1921.

1,422,252.

Patented July 11, 1922.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 11.

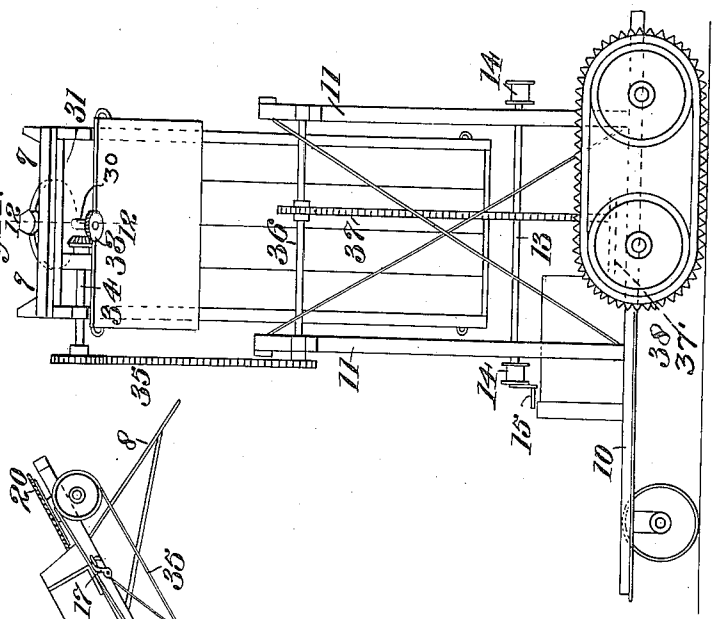


Fig. 10.

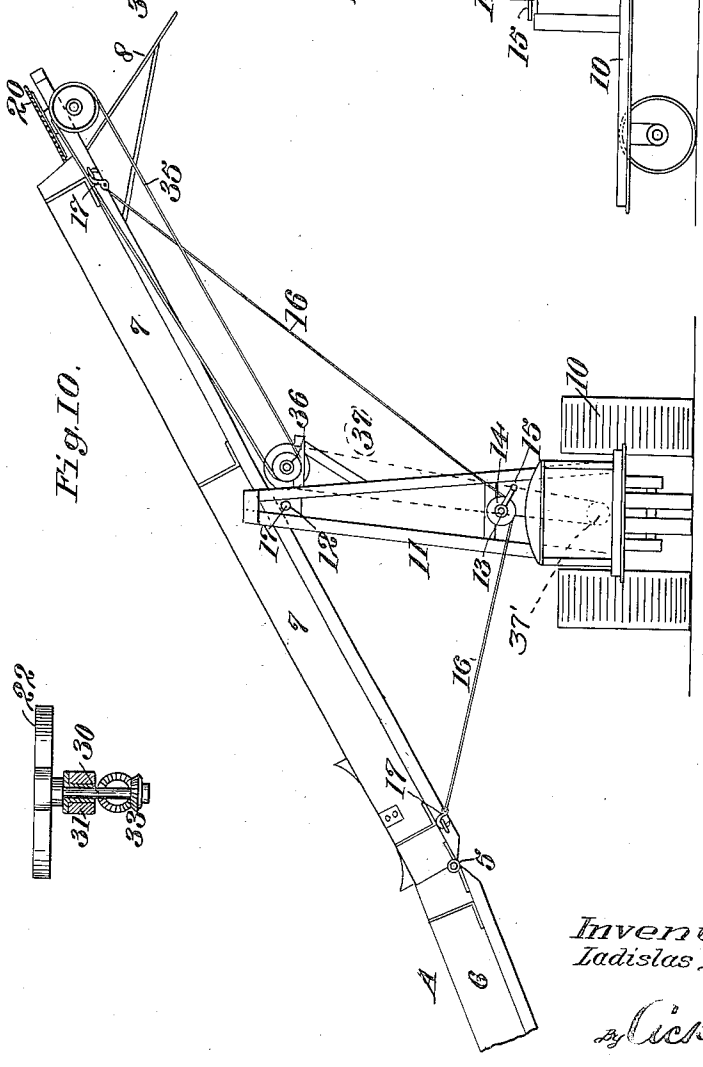


Fig. 12.

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3 SHEETS—SHEET 3.

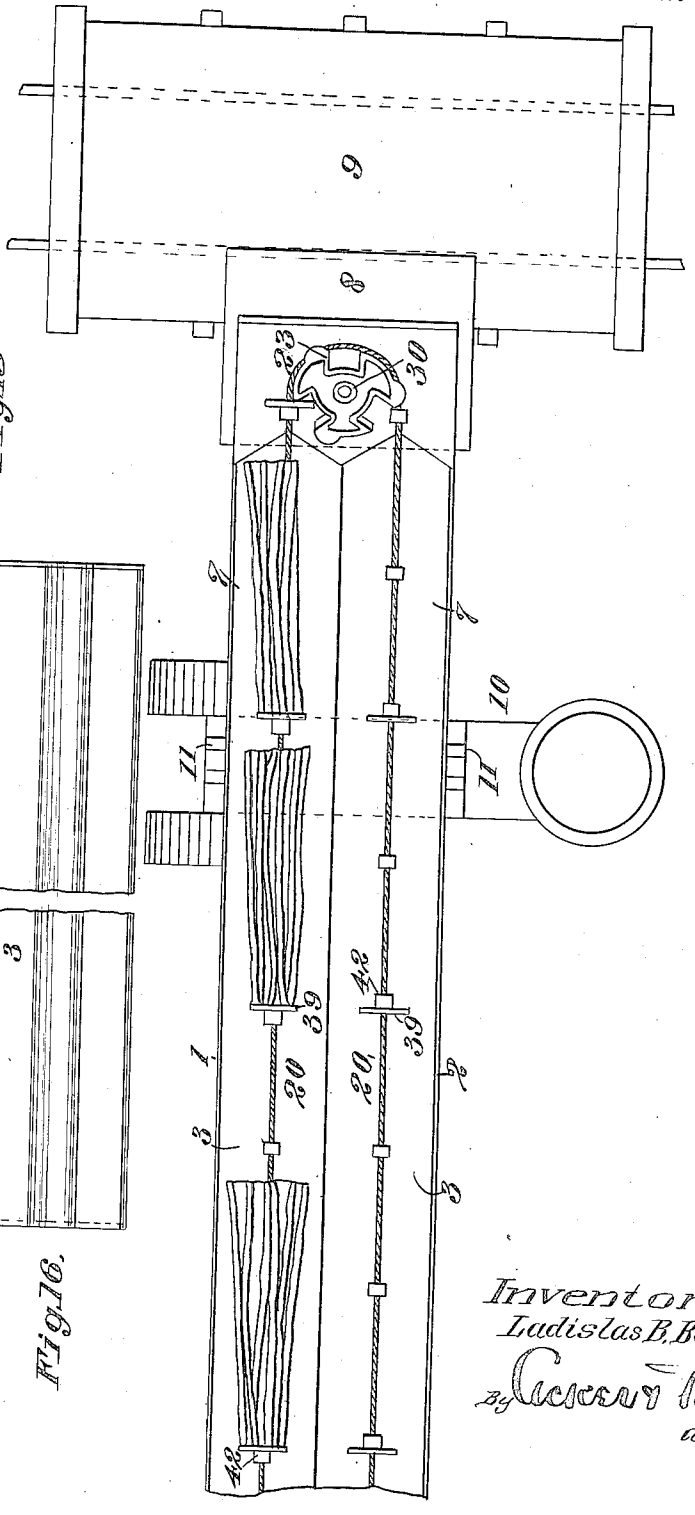


Fig. 13.

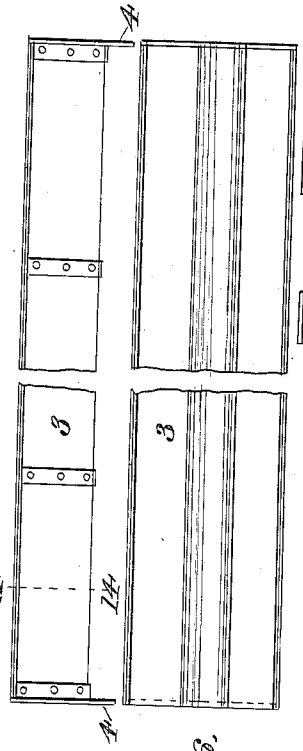


Fig. 15.

Fig. 16.

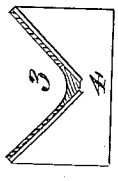


Fig. 14.

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UNITED STATES PATENT OFFICE.

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LOADING AND TRANSPORTING APPARATUS.

1,422,252. Specification of Letters Patent. Patented July 11, 1922.

Application filed May 4, 1921. Serial No. 466,847.

To all whom it may concern:

Be it known that I, LADISLAS B. BOREIKO, a citizen of the United States, residing at Honolulu, in the county of Honolulu, Territory of Hawaii, have invented certain new and useful Improvements in Loading and Transporting Apparatus, of which the following is a specification.

The present invention relates to a conveying and loading apparatus designed particularly for use in connection with the conveying from the field and the loading into cars, wagons, trucks or other vehicles, of sugar cane.

One of the principal objects of the present invention is to provide a conveying and loading apparatus which is continuous in its operation thereby enabling the handling of a large volume of cane at a relatively low cost.

A further object is to provide a conveying and loading apparatus of the endless type which is adapted for assembly in the field, and which is of sectional formation enabling the ready demounting and transporting of the same to another portion of the field at a relatively slight cost, and one constructed in such manner that the same is capable of receiving for its full length cane for transporting and loading.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention reference is directed to the accompanying drawings, wherein:—

Figure 1 is a view in side elevation of the preferred embodiment of my invention disclosing more fully the self-propelled portable power unit at the discharge end thereof.

Figure 2 is a top plan view.

Figure 3 is a view in plan of the anchor plate and the take-up or tension device for the conveyer.

Figure 4 is a view in side elevation of Figure 3.

Figure 5 is a vertical sectional view of one of the troughs taken on line 5—5 of Figure 6.

Figure 6 is a fragmentary view in vertical section of one of the troughs taken on line 6—6 of Figure 5.

Figure 7 is a view in elevation of one of the conveying members taken on line 7—7 of Figure 9 viewed in the direction of the arrows.

Figure 8 is a view similar to Figure 7 taken on line 8—8 of Figure 9.

Figure 9 is a view in side elevation of one of the conveyers.

Figure 10 is a view in side elevation of the self-propelled power unit disclosing the end trough carried thereby, and pivotally mounted thereon.

Figure 11 is a view in end elevation of the unit illustrated in Figure 10.

Figure 12 is a vertical sectional view taken on line 12—12 of Figure 11.

Figure 13 is a view in plan of the discharge end of the trough illustrated in Figures 10 and 11.

Figure 14 is a vertical sectional view of one of the troughs.

Figure 15 is a side view of one of the troughs, and

Figure 16 is a top plan view of one of the troughs.

In the drawings wherein like characters of reference designate corresponding parts, the numerals 1 and 2 indicate respectively conveying and return paths of an endless conveyer each consisting of a plurality of open topped troughs 3 (Figure 14) substantially V-shaped in cross section, and each provided on its opposite ends with supporting feet or plates 4 adapted for resting on the ground surface. The adjacent ends of corresponding troughs are detachably connected together in any suitable manner, and at one end said paths are upwardly inclined as at A, Figure 1 of the drawings, enabling the material conveyed therein to be elevated. A horizontal fulcrum connection 5 is made between the adjacent ends of each elevated section and between the ends of the last horizontal section and the elevated section, as in Figure 1, this pivotal connection affording a detachable connection or uniting means between adjacent ends of the troughs whereby the troughs may be separated and enabling the terminal troughs of the runways to be held at various inclinations. In the present disclosure, I have illustrated two

elevated troughs 6 and 7, the trough 7 at its discharge end carrying a guide board 8 which is adapted to guide the cane discharged therefrom into a car or other transporting member 9. A portable self-propelled unit power plant 10, preferably in the form of a tractor, supports the trough 7, and said unit carries a vertical frame 11, to the upper end of which, as at 12, the trough 7 is pivoted to fulcrum midway of its length on a horizontal axis. A shaft 13 extends transversely of the frame 11 and carries on its ends winding drums 14 and a crank 15, and around said drums are wound the intermediate portions of the respective retaining cables 16 secured on their opposite ends to the opposite ends of the trough, as at 17.

It will be apparent that the rotation of the drum 14 will pivot the trough 7 on its fulcrum 12, and thus vary the inclination thereof to position the discharge chute or board 8 in close proximity to the vehicle 9 in order to discharge the cane from the trough 7 into the vehicle.

The opposite ends of the paths from the power unit 10 are detachably connected to an anchored plate 18 held by a stake or other suitable member 19 affording a vertical pivot for the plate, and which construction permits of the swinging of the paths in an arc about the point 19 on the operation of the unit 10 when it is so desired.

Operating in the paths in the direction of the arrows, Figure 2 of the drawings, is an endless flexible conveyer 20 preferably of rope or cable and the same at the end of its respective flights operates about the respective sheaves 21 and 22 each formed with the radial pockets 23. The sheave 21 rotates between the bifurcated end 25 of a tie-plate or member 26, and said sheave is held by a pin 24 uniting said ends 25. The plate 26 at one end is formed with a hook 27 around which is passed the tension rope or cable 28 which engages a corresponding hook 29 on the plate 18, the adjustment of the member 28 placing the endless conveyer 20 under the desired tension by separating the fulcrums of the sheaves 21 and 22. The sheave 22 is similar to sheave 21, and is carried on the upper end of a vertical shaft 30 extending through a plate or board 31 at the discharge end of the trough 7. The shaft 30 is geared, as at 33, to a stub shaft 34, which is in turn connected by a driving chain 35 with a counter shaft 36 carried by the frame 11. The counter shaft 36 is driven through a flexible connection 37 from the countershaft 37′ of the power unit 38 of the self-propelled member 10. Thus it will be observed that the member 38 provides power for operating the sheave 22 to move the endless flexible conveyer 20 in the direction of the arrows (Figure 2) in the respective runways 1 and 2. To engage the material deposited in the runways 1, and to convey the same to the discharge end of the trough 7 forming part of said runway or path, the flexible member 20 is provided at spaced intervals, preferably corresponding to twice the distance between adjacent pockets 23 in the sheaves 21 with conveyer plates or disks 39 of a configuration to rest in the base of the troughs, and said plates are radially slotted, as at 40, to permit the reception of the cable 20 in the center thereof, the cable being clamped by a bolt 41. A split clamp 42 engages the cable 20 at one face of the plate 39, and assists in preventing the slipping of the plate longitudinally of the cable.

At the point of connection between the troughs 6 and 7 and between the trough 6 and the terminus of the horizontal portions of the runway, I position suitable guide plates 43 to extend transversely over the troughs, the same being of a length greater than the distance between adjacent plates 39, to cause the retaining of the endless conveyer flights in the runways when tension is placed thereon; as, if these guide plates were not provided, the tendency of the members 20 would be to assume a straight line or nearly so from the sheave 21 to the sheave 22. By observing Figure 5, it will be apparent that the end portion of the plates 43 is fashioned to conform to the configuration of members 39, and that the opposite ends of said plates are upwardly curved, as at 44, to insure the ready sliding beneath the same of the members 39.

The device being assembled as in Figures 1 and 2 of the drawings, the same is operated in the following manner:—on the delivery of power to the member 37, it, through its associated connections drives the shaft 30, causing the movement of the endless member 20 in the direction of the arrows, Figure 2, in the respective paths. The cane as collected in the fields is dropped into the path 1, and, due to the shape of the troughs forming the path, falls to the bottom of the respective troughs, and the movement of the member 20 causes the plates 39 to engage in rear of the ends of the cane, as in Figure 13, and conveys the same to the discharge end of the trough 7 of path 1. During this operation, the members 39 in passing around the sheaves 21 and 22 are received in the pockets 23, thus enabling the flexible member 20 to ride on the periphery of the sheaves. When the cane at one portion of the field has been collected and transported, it is possible, if the conveyer is not of too great a length, to operate the member 10 and move the same in an arc, at which time the intermediate portions of the paths 1 and 2 are manually moved over the ground and the anchor plate 18 and fulcrum about the post 19, thus enabling the movement of the conveyer to a new portion of the field. If this is not de-

sirable, the sections 6 and 7 are disconnected and the member 10 is moved to a new position, after which time the trough 7 thereof is connected to a newly laid section of conveyer.

It will be apparent that the operation of the member 13 enables the trough 7 to be held at various inclinations, permitting the cane to be lifted at different heights prior to the discharge thereof into suitable cars. This adjustment permits of the employment of cars of different depths, and enables the discharge of cane into cars when the tractor or member 10 rests in a plane below the point of support of the car.

I claim:—

1. A field conveying and loading apparatus including a runway consisting of a plurality of open topped troughs arranged in end to end relation and interconnected at their adjacent ends, an anchor associated with one end of said runway permitting the opposite end to swing in an arc about said anchor, a self propelled power unit over which the discharge end of said runway extends for elevating the discharge end in a plane above the remainder, an endless conveyer operating within said runway, conveyer members carried thereby, sheaves around which said conveyer operates, and a power connection between said self propelled power unit and said conveyer.

2. A field conveying and loading apparatus including a runway consisting of a plurality of open topped troughs arranged in end to end relation and interconnected at their adjacent ends, an anchor associated with one end of said runway permitting the opposite end to swing in an arc about said anchor, a self propelled power unit over which the discharge end of said runway extends for elevating the discharge end in a plane above the remainder, a fulcrum between the trough at the discharge end of said runway and its point of support by said power unit, whereby said trough is capable of pivotal movement on a horizontal axis, means for pivotally adjusting said trough, an endless conveyer operating within said runway, conveyer members carried thereby, sheaves around which said conveyer operates, and a power connection between said self propelled power unit and said conveyer.

3. A field conveyer and loading apparatus comprising a sectional open topped trough elevated at its discharge end, a self propelled power unit supporting the elevated discharge end of said trough and for moving the same about the field, an anchor plate for the opposite end of the trough permitting the discharge end to be moved in an arc, an endless flexible conveyer operating in the trough, a plurality of conveying discs secured to the conveyer, a pocketed sheave at each end of the trough around which said conveyer operates, a driving connection between the power unit and the sheave at the discharge end of the trough, an adjustable connection between the other sheave and said anchor plate, whereby the conveyer is maintained under tension, and means for raising and lowering the discharge end of said trough.

4. A field conveying and loading apparatus including a plurality of open topped troughs arranged in end to end relation and interconnected at their adjacent ends providing a conveying path, an anchor for one end of said path, a portable self propelled power unit supporting the other or discharge end of said path and for maintaining the discharge end elevated above the remainder, an endless conveyer operating within said path, sheaves around which said conveyer operates, means for maintaining the conveyer under tension, and a driving connection between the power unit and said conveyer.

5. A field conveying and loading apparatus including a plurality of elongated open topped troughs arranged in end to end relation and interconnected at their adjacent ends by horizontal fulcrums and providing a conveying path, a portable self propelled power unit including an elevated frame, a horizontal fulcrum connection between the frame and the approximate central portion of the discharge trough of said conveying path permitting the fulcruming of said trough whereby its inclination may be varied, an endless conveyer operating within said conveying path for its full length, and a driving connection between said power unit and said endless conveyer.

6. A field conveying and loading apparatus including an elevated frame a plurality of elongated open topped troughs arranged in end to end relation and interconnected at their adjacent ends providing a conveying path, a horizontal pivotal connection between the discharge trough of said path and said frame, an endless conveyer operating within said path, a plurality of conveying members secured to said conveyer in spaced relation throughout its length, a sheave at each end of the path and around which said conveyer operates, and a driving connection between the power unit and one of said sheaves.

7. A field conveying and loading apparatus, consisting of an endless flexible conveyer, conveying members secured to the conveyer, sheaves dividing the conveyer into parallel flights and around which said conveyer operates, means for driving one of the sheaves, a pair of parallel open topped runways within which said conveyer flights operate, said runways each consisting of a plurality of pivotally connected troughs, a

portable self propelled power unit, a frame extended upwardly therefrom and carried thereby and over which the terminal troughs at one end of the respective runways extend, and a horizontal fulcrum between said troughs and frame whereby said end troughs are capable of pivotal movement on a horizontal axis.

8. A field conveying apparatus comprising a runway consisting of a plurality of detachably connected open topped trough sections, a self propelled power unit, a frame extending upwardly therefrom, a pivoted connection between the endmost trough of said runway and said frame whereby the trough is elevated and mounted within its length to pivot on a horizontal axis and is capable of detachment from the remainder of said runway forming trough sections, for transporting as a unit by said power unit, means for retaining said trough in its adjusted position, a conveyer for operating within the runway, and a driving connection between the power unit and said conveyer.

In testimony whereof I have signed my name to this specification.

LADISLAS B. BOREIKO.