H. F. W. DREWES.

HARVESTER.

APPLICATION FILED MAY 4, 1914.

1,178,634.

Patented Apr. 11, 1916.

3 SHEETS—SHEET 1.

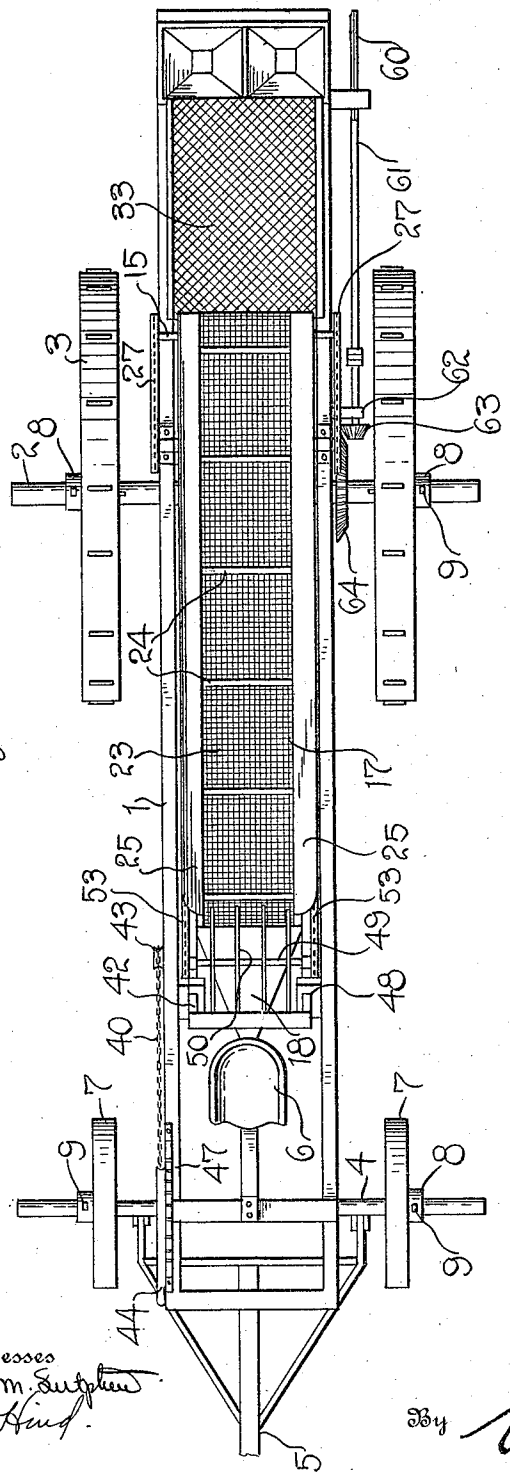


Fig. 1

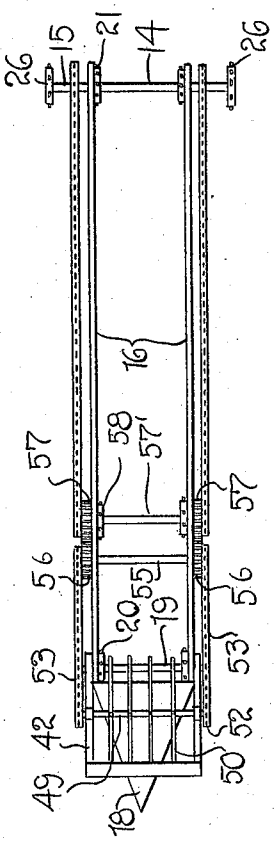


Fig. 3

Witnesses
Robert M. Sutphen
A. L. Hinkle

Inventor
H. F. W. DREWES

By Watson E. Coleman
Attorney

H. F. W. DREWES.

HARVESTER.

APPLICATION FILED MAY 4, 1914.

1,178,634.

Patented Apr. 11, 1916.

3 SHEETS—SHEET 2.

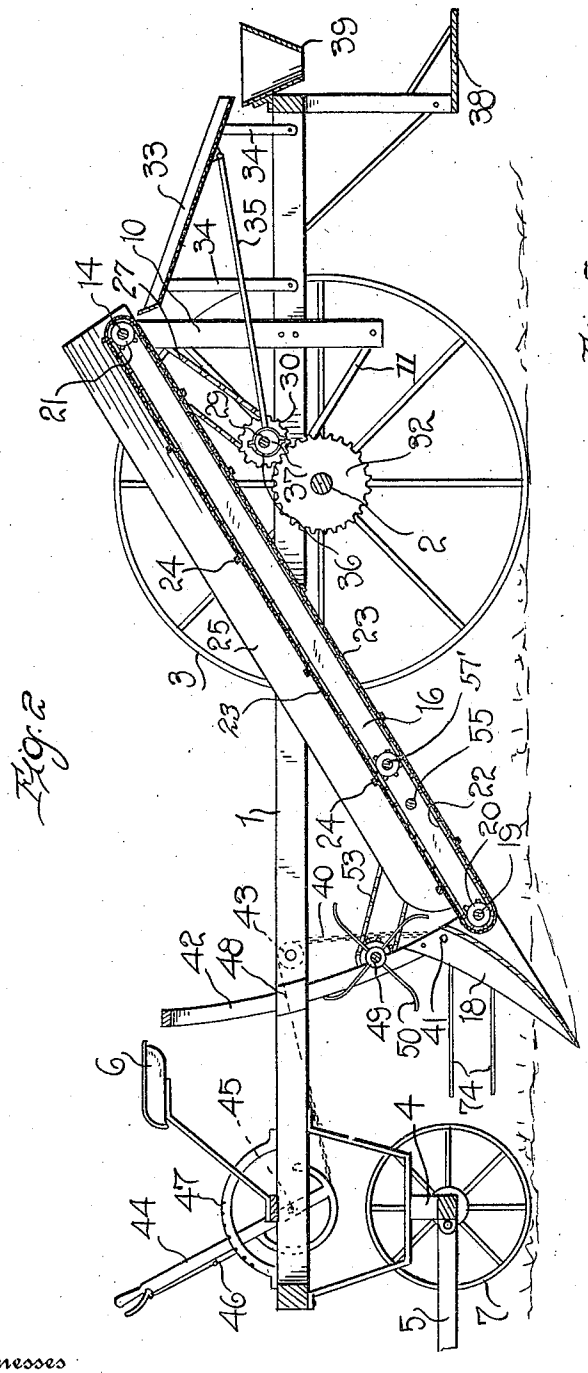


Fig. 2

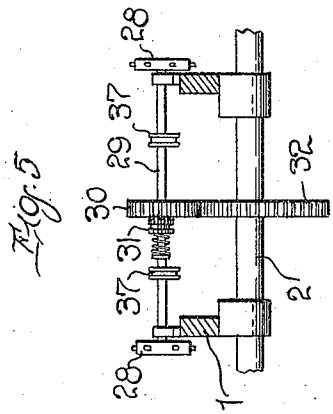


Fig. 5

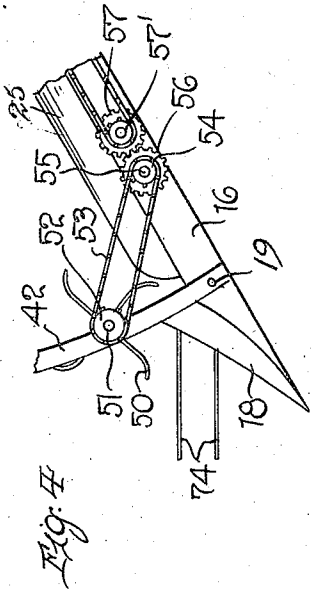


Fig. 4

Witnesses

Robert M. Sutphen.

A. L. Hinkle.

Inventor

H. F. W. DREWES

By Watson E. Coleman

Attorney

H. F. W. DREWES.

HARVESTER.

APPLICATION FILED MAY 4, 1914.

1,178,634.

Patented Apr. 11, 1916.

3 SHEETS—SHEET 3.

Fig. 6

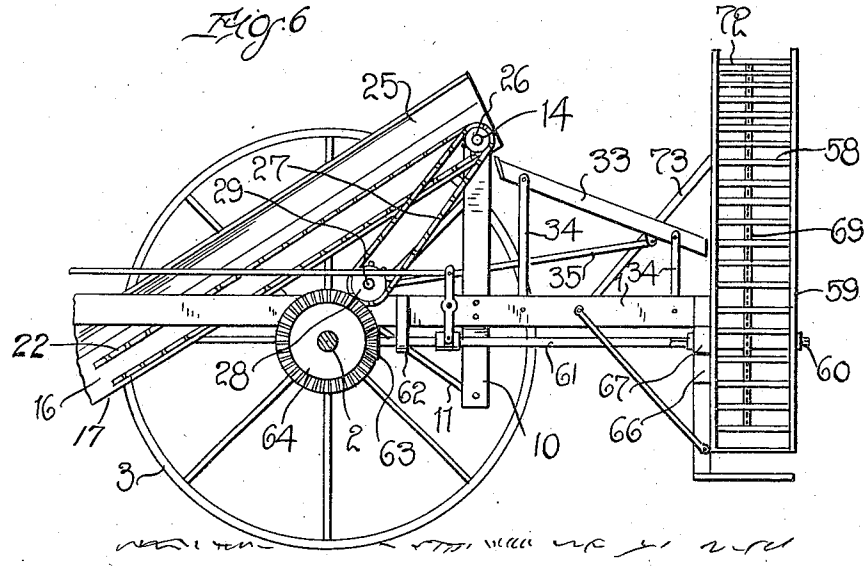


Fig. 7

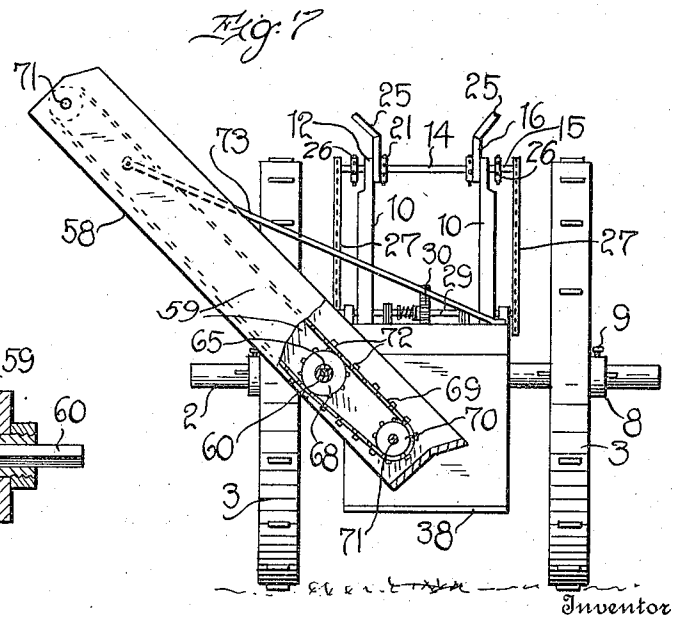
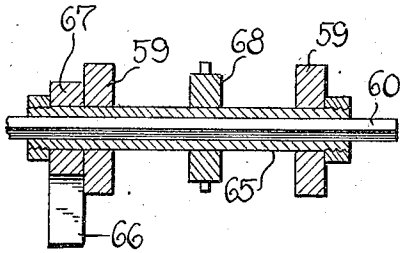


Fig. 8



Witnesses
Robert M. Sutphen.
A. L. Hinkle.

Inventor
H. F. W. DREWES

By Watson E. Coleman
Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY FREDERICK WILLIAM DREWES, OF PLANT CITY, FLORIDA.

HARVESTER.

1,178,634. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed May 4, 1914. Serial No. 836,265.

To all whom it may concern:

Be it known that I, HENRY FREDERICK WILLIAM DREWES, a subject of the King of England, residing at Plant City, in the county of Hillsboro and State of Florida, have invented certain new and useful Improvements in Harvesters, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in harvesters and has relation more particularly to a device of this general character especially designed and adapted for use in connection with the digging and collecting of tubers, such as potatoes; and the object of the invention is to provide a device of this general character having novel and improved means whereby the tubers, after being lifted from the soil, are caused to be delivered to a predetermined point of discharge with convenience and facility.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved harvester whereby certain important advantages are attained and the device is rendered simpler, less expensive and otherwise more convenient and advantageous for use, all as will be hereinafter more fully set forth.

The novel features of the invention will be carefully defined in the appended claim.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein—

Figure 1 is a view in top plan of a harvester constructed in accordance with an embodiment of my invention; Fig. 2 is a vertical sectional view taken sustantially through the longitudinal center of the device as illustrated in Fig. 1; Fig. 3 is a view in top plan, detached, with certain of the parts omitted, of the conveyer disclosed in the preceding views; Fig. 4 is a fragmentary view in side elevation of the lower end of the conveyer and the digging member as herein embodied; Fig. 5 is a transverse sectional view taken through the upper portion of the conveyer, with certain parts omitted, illustrating the driving means therefor; Fig. 6 is a fragmentary view in side elevation of the device as herein embodied and showing an elevator applied in operative position; Fig. 7 is a view in rear elevation of the device as disclosed in Fig. 6 with a portion of the elevator illustrated in section; and Fig. 8 is an enlarged sectional view taken through the elevator and its operative connection, with certain of the parts omitted.

As disclosed in the accompanying drawings, 1 denotes a frame preferably rectangular in form and of any desired dimensions having suitably supported adjacent its rear extremity the shaft 2 on which are keyed the traction wheels 3—3, while the forward portion of the frame is supported by the steering truck 4 of any ordinary or conventional form and with which is operatively engaged the draft rigging 5. The forward portion of the truck is also provided with the seat member 6 adapted to be occupied by the operator. By having the traction wheels 3—3 keyed upon the shaft 2, it will be readily perceived that the same may be adjusted longitudinally of the shaft 2 in order to compensate for the varying widths of the rows over which the machine is adapted to be drawn and this arrangement is also true of the wheels 7, comprised in the steering truck 4. Any means may be employed for maintaining the wheels 2 and 7 in their adjusted positions but, as herein disclosed, I employ the conventional collars 8 clamped against movement upon the respective shafts by the set screws 9.

Adjacent its rear portion, the frame 1 is provided with the uprights 10—10 projecting above and below such frame and being effectively braced in proper position through the medium of the elongated members 11—11 having their opposite extremities suitably secured to the uprights 10 and to the longitudinal side bars of the frame 1. The upper extremities of the uprights 10 are provided with suitable bearings 12 in which is rotatably mounted the transverse shaft 14 projecting, as indicated at 15, beyond each of the uprights 10 and such shaft 14 has pivotally engaged therewith intermediate the uprights 10 and in close proximity thereto, the side members 16 of the conveyer frame 17, the lower extremities of such side members being connected by the digging member or plow 18. The lower extremities of the side members 16 rotatably support the idle transverse shaft 19 having fixed thereto between the side members 16 and in close proximity thereto the sprocket wheels 20 around which pass the endless sprocket chains 22 which are also directed around the

sprocket wheels 21 fixed to the upper shaft 14 and in alinement with the sprockets 20.

The chains or members 22 have operatively connected therewith the endless apron 23 adapted to travel therewith and formed preferably of a wire fabric, although it is to be understood that any other foraminous material may be employed with equal facility, which will permit the earth or other foreign substances separated from the tubers to pass therethrough during the upward travel of the apron 23. In order to assure the travel of the tubers upwardly with the apron 23, I also find it of advantage to provide at predetermined intervals the cross bars or slats 24 having their opposite extremities suitably secured to the chains or members 22. In order to further maintain the lifted tubers upon the apron 23, I find it of advantage to suitably secure to the side members 16 the side board 25 which may be of any desired construction.

The projected portions 15 of the shaft 14 have suitably fixed thereto the sprocket wheels 26 around which pass the sprocket chains 27 which are also directed around the sprocket wheels 28 affixed to the extremities of the shaft 29 disposed transversely of the frame 1 and operatively supported by the side members thereof, while the intermediate portion of such shaft has loosely mounted thereon the gear wheel 30 under control of the clutch member 31 carried by the shaft 29, such gear 30 being in mesh with a gear 32 fixed to the shaft 2 whereby it will be readily perceived that upon the advance of the machine, the conveying mechanism will be caused to properly operate the apron 23.

The apron 23 is adapted to discharge upon the agitator or sieve 33 operatively supported rearwardly of the conveyer frame 17 by the arms 34, such arms being pivotally engaged with the longitudinal side members of the frame 1 and with the frame of the agitator or sieve 33 whereby requisite recurrent movement may be imparted to such agitator or sieve to assure an effective separation of the earth or other foreign substances from the tubers deposited thereupon. As herein disclosed, the requisite movement is imparted to the agitator or sieve 33 through the medium of the pitmen 35 having their outer extremities pivotally engaged with the agitator or sieve 34 and with their inner extremities provided with straps 36 which are adapted to operatively surround the eccentrics 37 suitably secured to the shaft 29.

The rear extremity of the frame 1 is provided with a step member 38 which is adapted to support any suitable bag or sack holding means 39 whereby the tubers as they leave the agitator or sieve 34 may be deposited directly within such bags or sacks. I wish to state, however, that I find it of advantage, under certain conditions to provide a means whereby the tubers, as discharged from the agitator or sieve 34, may be conveyed to a suitable wagon or vehicle, such means to be hereinafter more fully described.

In order to vary the extent of penetration of the digging member or plow 18, the conveyer frame 17 is suitably rocked about the shaft 14 and, as herein disclosed, I accomplish this means through the medium of a flexible member 40 having one end suitably secured to an arm 42 and passed around a suitable guide roller 43 carried by the frame and disposed at one side thereof and having its opposite extremity suitably secured to the lower extremity of the vertically disposed lever 44 pivotally secured to the frame 1, as indicated at 45, at a point in advance of the lower extremity of the conveyer frame 17. In order that the member or plow 18 may be effectively maintained in its adjustment, I provide the lever member 44 with the spring-controlled latch 46 adapted to coact in the usual manner with the segmental rack 47 also carried at a proper point on the frame 1. It is to be observed that the lever 44 is so positioned upon the frame 1 as to be readily grasped by the occupant of the seat member 6. As herein disclosed, the guide arms 42 are suitably curved longitudinally and have their lower extremities secured to the lower portion of the conveyer frame 17 and are disposed through suitable openings 48 produced in the side member of the frame 1, as is believed to be self-evident. The arms 42 also have rotatably supported therein the shaft 49 positioned above the plow or digging member 18 and provided with the curved blades 50 which are adapted to rotate in such a direction as to assure the lifted tubers to be properly deposited upon the foraminous apron 23, such blades 50 serving in the nature of a beater.

As herein disclosed, the axle 49 has its opposite extremities projected, as at 51, and to such projected extremities are affixed the sprocket wheels 52 around which pass the sprocket chains 53 also directed around the sprocket wheels 54 produced on the projected extremities of a shaft 55 disposed transversely of the conveyer frame 17. This shaft 55 has also suitably affixed thereto the gear wheels 56 adapted to mesh with the gear wheels 57 suitably affixed to a second shaft 57′ disposed transversely of the conveyer frame 17 and with which the chains 22 are operatively connected through the medium of the sprocket wheels 58 whereby it will be readily perceived that the blades 50 will be caused to rotate in the proper direction.

When it is desired to convey the tubers into a wagon body or the like after the same

are discharged from the agitator or sieve 34, I find it of advantage to employ an elevator 58 adapted to be removably engaged with the frame 1 and, as herein disclosed, the elevator 58 comprises the frame 59 having its lower portion removably engaged with the projected extremity 60 of the shaft 61 disposed longitudinally of the frame 1 and maintained in proper position through the medium of the bearings 62, the inner extremity of such shaft 61 being provided with a beveled gear 63 adapted to mesh with a gear 64 suitably affixed to the shaft 2. The portion of the shaft 61 directed through the frame 59 is also disposed through a sleeve 65 adapted to rotate with such shaft 61 but permitting endwise movement of such shaft independently thereof so that the gear 63 may become disengaged from the gear 64 as desired; and in order that the outer extremity of such shaft 61 may be further reinforced, I find it of advantage to provide the angular bracket 66 projecting rearwardly of the frame 1 and terminating in a bearing 67 through which the shaft 61 and its sleeve 65 project.

The sleeve 65 is provided intermediate its length with the sprocket wheel 68 operatively engaged with the sprocket chain 69 directed around the sprockets 70 suitably affixed to the shafts 71 mounted in the opposite extremities of the frame 59 and in alinement with the sprocket 68. The chain 69 is provided with the transverse arms 72 disposed in close proximity one to the other and serve as an effective means whereby the tubers discharged within the frame 59 may be carried upwardly. In order to maintain the frame 59 at its proper inclination the brace rod 73 is employed, the upper extremity thereof being suitably secured to the frame 59 while its lower extremity is suitably secured to the frame 1. It is to be observed that the various connections relative to the frame 59 are of such a character as to permit such frame to be applied or removed from operative position when the requirements of practice may so require.

From the foregoing description, it is thought to be obvious that a harvester constructed in accordance with my invention is of an extremely simple and comparatively inexpensive nature and is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and by reason of the effectiveness with which it performs its functions, and it will also be obvious that my invention is susceptible of some change and modification without material departure from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice.

I also find it of advantage to provide the lower extremities of the side members of the conveyer frame 17 with the forwardly projecting vertically related arms 74 projecting above the digging member or plow 18 so that the tubers, as lifted from the earth, will be properly maintained in position, as is believed to be self-evident.

I claim:

A device of the character described comprising a wheel supported frame, a shaft operatively supported above the frame, a driving means for said shaft, a conveyer frame swingingly engaged with the shaft and including side members, an idle shaft supported by the side members adjacent the lower extremities thereof, an endless apron disposed around both of said shafts and operatively engaged therewith, a third shaft supported by the side members and disposed between the stretches of the apron, an operative connection between the first named shaft and the last named shaft whereby said last named shaft is positively driven, a fourth shaft supported by the side members below the last named shaft and in close proximity thereto, said fourth named shaft being also disposed between the stretches of the apron, the extremities of the third named shaft and the fourth named shaft being operatively connected whereby the same are caused to rotate in unison but in opposite directions, a ground engaging element carried by the lower extremity of the conveyer frame, a beater rotatably supported by the ground engaging implement at a point thereabove and including a shaft, and means for positively connecting the extremities of the beater shaft and the extremities of the fourth named shaft.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HENRY FREDERICK WILLIAM DREWES.

Witnesses:

T. C. MAGUIRE,

J. E. CASSELS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."