

No. 850,019.

PATENTED APR. 9, 1907.

R. KRAUSE.

COMBINED POTATO DIGGER AND COTTON CHOPPER.

APPLICATION FILED MAY 29, 1906.

2 SHEETS—SHEET 2.

Fig. 2.

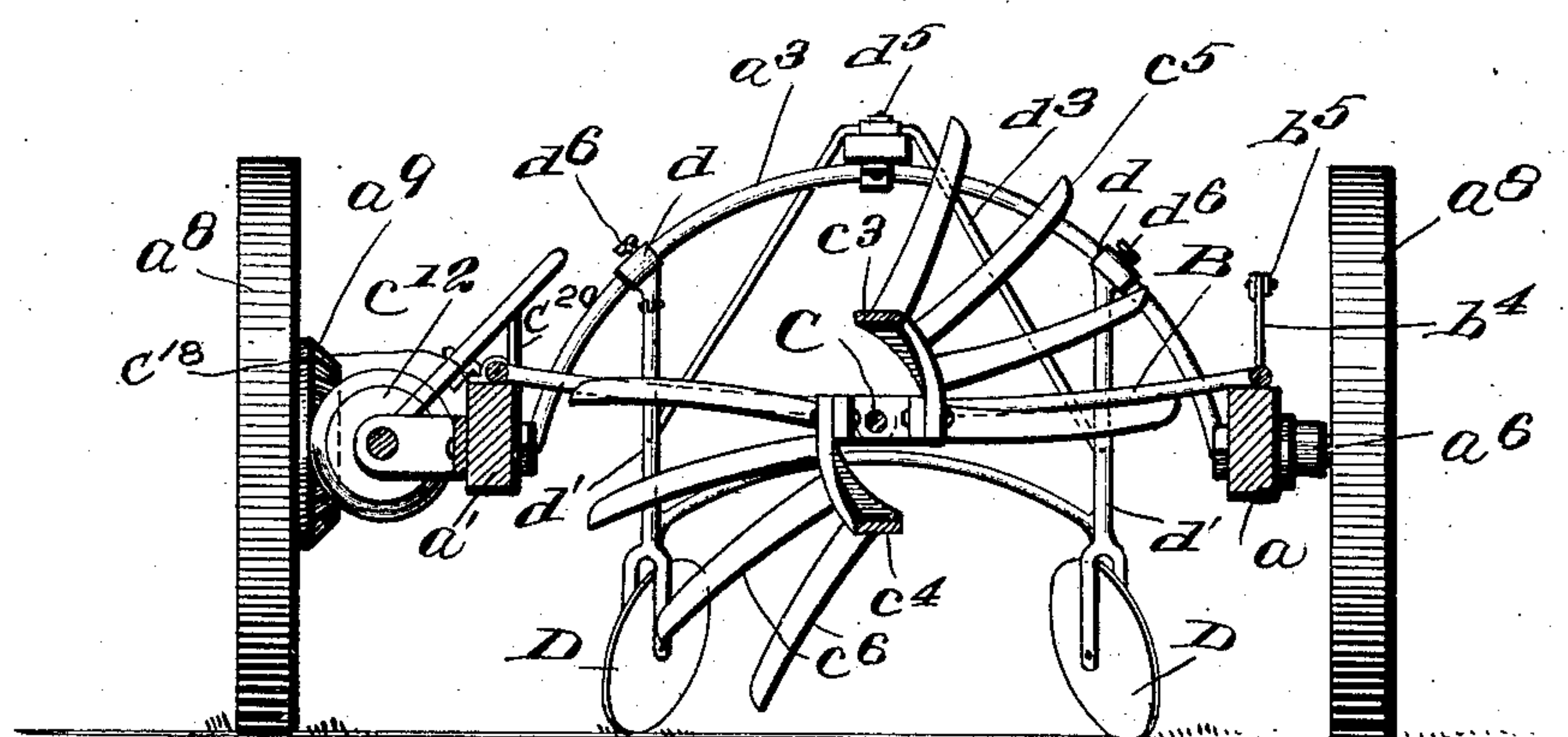
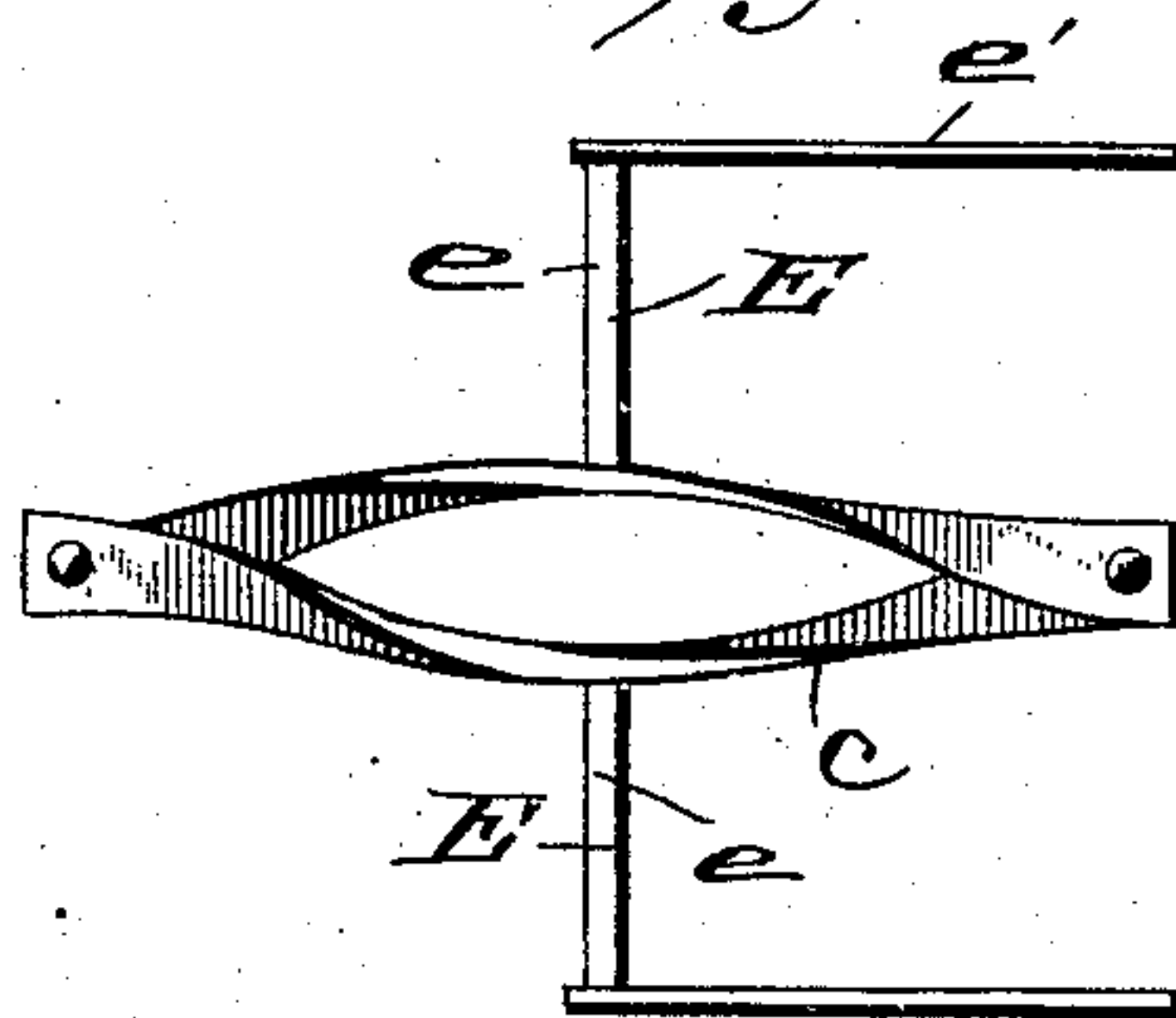


Fig. 4.



WITNESSES
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COMBINED POTATO-DIGGER AND COTTON-CHOPPER.

No. 850,019.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed May 29, 1906. Serial No. 319,394.

To all whom it may concern:

Be it known that I, ROMANUS KRAUSE, a citizen of the United States, and a resident of Swanquarter, in the county of Hyde and State of North Carolina, have invented certain new and useful Improvements in Combined Potato-Diggers and Cotton-Choppers, of which the following is a specification.

My invention is an improvement in combined potato-diggers and cotton-choppers, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

Referring to the drawings forming a part hereof, Figure 1 is a plan view of my invention. Fig. 2 is a section on the line 2 2 of Fig. 1 looking in the direction of the arrow. Fig. 3 is a detail perspective view of the potato-digger, and Fig. 4 is a similar view of the cotton-chopper. Fig. 5 is a detail of the mechanism for raising and lowering the subsidiary frame.

In the present embodiment of my invention a frame A is provided, comprising longitudinal beams a a' , connected by upwardly-arched cross-bars a^2 a^3 . A tongue a^5 is secured to the center of the two forward arched bars, and stud-shafts a^6 a^7 are journaled upon the longitudinal beams, the said stud-shafts having the wheels a^8 journaled upon their outer ends. One of said wheels a^8 is provided on its inner face with a gear-wheel a^9 for a purpose to be hereinafter described.

A subsidiary frame B, comprising the longitudinal bars b , connected by cross-bars b' , is hinged at one side upon one of the longitudinal bars, as at b^2 , and rests at the other side upon the other longitudinal bar, a catch b^3 being provided for retaining the frame in position upon the bars.

A link b^4 is pivoted to the disconnected longitudinal bar of the subsidiary frame and has connected to the end thereof one end of a lever b^5 , pivoted by its center upon a bracket b^6 and having at the other end a spring-catch b^8 , engaging a quadrant b^7 , whereby to maintain the subsidiary frame in its adjusted position. It will be understood that by bearing down upon the disconnected end of the lever b^5 the subsidiary frame is swung upon its hinge connection with the longitudinal beam, whereby to raise and lower it with respect to the main frame.

A shaft C is journaled longitudinally of the subsidiary frame B and approximately cen-

trally thereof in bearings b^9 upon the cross-bars. A frame comprising cross-bars c' c^2 , provided with openings for receiving the shaft and with side members c^3 c^4 , arranged spirally with respect to the said shaft, is connected rigidly thereto, and upon each side member is arranged a series of blades c^5 c^6 , spaced apart from each other and perpendicularly with respect to the said side members and also perpendicularly to the shaft. Each of said blades c^5 c^6 comprises a shank c^8 , engaging an opening in the side member of the frame, and a curved pointed blade portion c^7 , having rounded edges.

Upon the end of the shaft C outside of the frame is a sprocket-wheel c^9 , connected by a chain c^{22} with a sprocket-wheel c^{11} upon a counter-shaft c^{10} , journaled in a bracket c^{23} upon the longitudinal beam adjacent to the wheel a^8 , provided with a bevel-gear, and the inner end of said counter-shaft is provided with a bevel-gear c^{12} , having a keyway engaged by a key c^{14} on the counter-shaft c^{10} . The said bevel-gear c^{12} is provided with a sleeve c^{15} , having an annular groove engaged by the fork c^{19} of the lever c^{17} , pivoted by its center to the bracket c^{18} , connected with the longitudinal beam; the free end of the lever being adapted to engage a quadrant c^{20} , whereby to maintain the bevel-gear in its adjusted position. It will be evident that when the bevel-gear c^{12} is moved into mesh with the bevel-gear a^9 that the counter-shaft c^{10} will be rotated, thus rotating the shaft C in a direction opposite to the direction of the spiral formed by the side members and the blades.

A plurality of disks D are arranged in front and at each side of the shaft C, the said disks being arranged at an angle with respect to said shafts. The disks D are journaled in the lower end of posts d' , pivoted to clamps d upon the central cross-bar, the said clamps being adjustably mounted upon said bar and retained in their adjusted position by means of set-screws d^3 . A yoke d^6 is provided for lifting the disks out of operative position, the body of the yoke resting upon the tongue, and the arms thereof being pivoted to the posts near the lower end thereof. Upon the tongue is arranged a catch d^5 for engaging above the body of the yoke when the disks are in their lowered position, whereby to secure them in such position.

The disks are raised by grasping the body

of the yoke and drawing the same upward, the yoke being merely a convenience for lifting the disks and for retaining them in position when lowered.

5 In operation the improved digger is driven along the row, with the wheels upon each side of a hill. The bevel-gear being thrown into mesh with the bevel-gear on the wheel, the shaft C is rotated in a direction opposite
10 to that of the spiral arrangement of the blades, and they are forced into the ground beneath the potatoes, and since they are set close enough together to prevent the passage of the potatoes therebetween the potatoes
15 are removed from the hill and thrown to each side thereof. The spiral arrangement of the blades acts in the manner of a screw working the tops toward the back of the machine and passing them away from the digger. In
20 moving from one row to another the subsidiary frame is elevated, thus elevating the digger above the ground. The disks at the front of the digger are arranged at approximately the edges of the cut made thereby,
25 whereby to separate the portion to be cut from the adjacent soil.

In Fig. 4 I have shown a hoe E comprising a shank *e* and a horizontal blade *e'*, which when my improved machine is used as a cotton-chopper takes the place of the blades.
30 The shank of one hoe is attached to each side member of the frame *c*, the hoes projecting in opposite directions in such manner that when the shaft is rotated the horizontal portion of the hoe passes into the ground, cutting out the cotton-plants at predetermined
35 intervals.

A seat may be provided for the convenience of the operator, as shown in Fig. 1.

40 It will be observed that the digging mechanism comprises a frame having the main bars turned spirally to form approximately a screw, which would, if moved in the direction of its axis through a resisting medium, be
45 caused to turn in one direction or the other, according to the spiral twist of the frame-bars. However, I provide means for turning the frame in a reverse direction to that in which it would be turned in the operation
50 just described.

What I claim is—

1. In a machine of the character described, the combination with the main frame, and means for supporting the same, of a shaft
55 journaled longitudinally of the main frame and at the center thereof, a subsidiary frame hinged to the main frame, means for raising and lowering the subsidiary frame, a shaft journaled centrally of the subsidiary frame
60 and arranged longitudinally with respect to the main frame, a frame rigid with the shaft and comprising end members having openings for receiving the shaft, and side members spirally arranged with respect to the
65 shaft, curved blades arranged in spaced relation on the side members and perpendicularly to the shaft, and means for positively turning the shaft in a direction opposite to the direction it would be turned by the action of a resisting medium when drawn
70 through said medium in the direction of its axis.

2. In a machine of the character described, the combination with the frame and means for supporting the same, of a shaft journaled
75 longitudinally of the frame at the center thereof, a frame rigid with the shaft and comprising end members having openings for receiving the shaft, and side members spirally arranged with respect to the shaft, curved
80 blades arranged in spaced relation on the side members and perpendicularly to the shaft, and means for positively turning the shaft in a direction opposite to the direction it would be turned by the action of a resisting
85 medium when drawn through said medium in the direction of its axis.

3. In a machine of the character described, a shaft having a plurality of series of blades arranged spirally thereon and perpendicu-
90 larly thereto, means for positively turning the shaft in a direction opposite to the direction it would be turned by the action of a resisting medium when drawn through said medium in the direction of its axis, and
95 means for supporting the shaft.

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Witnesses:

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