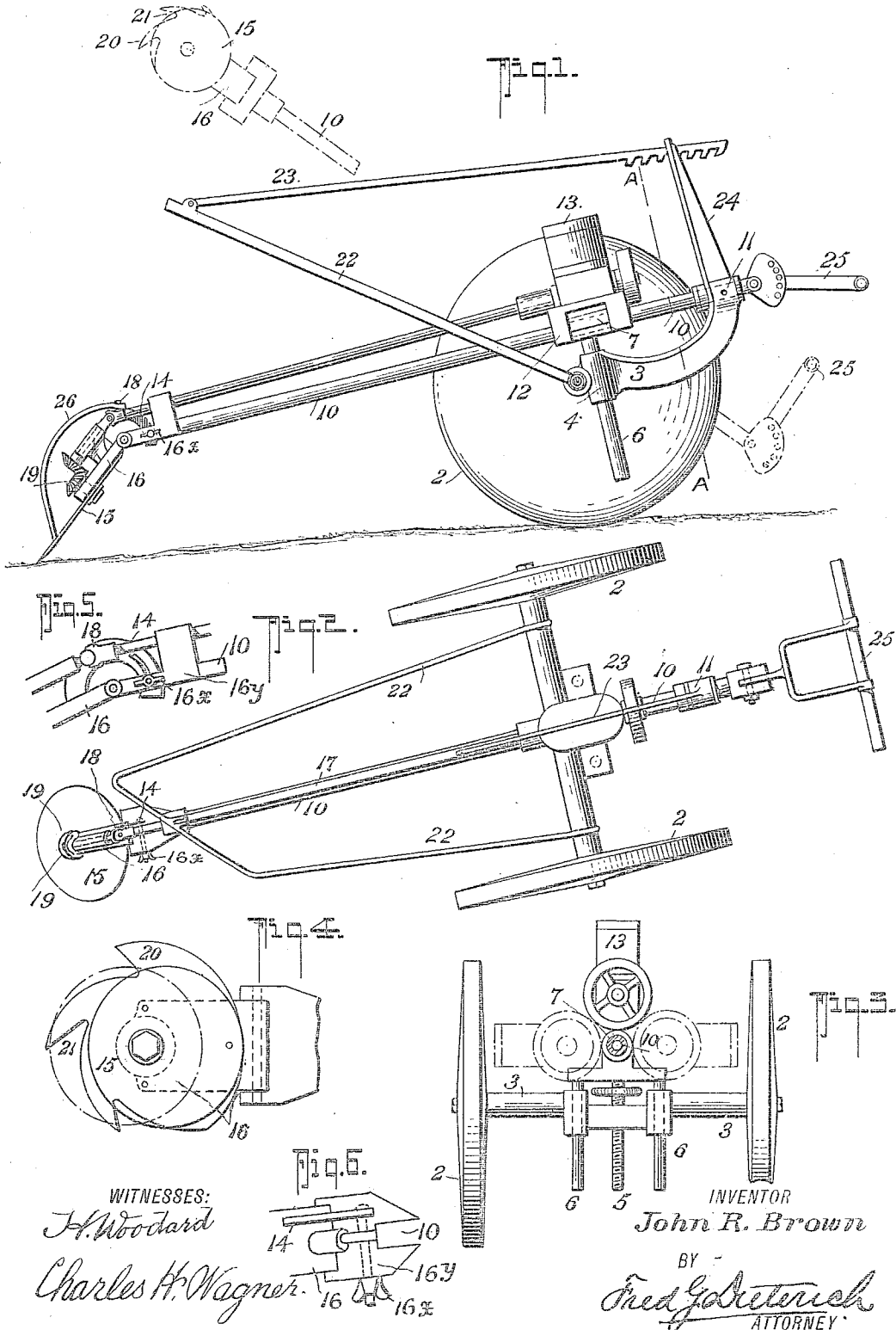


J. R. BROWN.
CANE CUTTING MACHINE.

APPLICATION FILED MAY 28, 1908. RENEWED FEB. 19, 1910.

953,592.

Patented Mar. 29, 1910.



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JOHN R. BROWN, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN R. BROWN, citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Improvement in Cane-Cutting Machines, of which the following is a specification.

This invention relates to a mechanically operated knife for cutting down sugar cane in the field and my object has been to provide a power operated knife for this purpose and to mount that knife in such a manner that it may be conveniently manipulated to cut down canes which may be inclined at various angles to the ground, and also to strip off the leaves and top the canes.

The work of cutting sugar cane is particularly arduous not only on account of the hardness of the actual work, but also because of the climatic conditions under which the cane grows, and on the latter account cannot be undertaken by white men, but only by those who are accustomed to outdoor work in the tropics. The soft and uneven nature of the ground in which sugar canes are cultivated imposes limitations on the weight and character of the machine with which this work can be performed and the machine which is the subject of this application has been devised to meet the requirements. In it I provide a circular revolving knife forwardly projected on a light arm from the body of the vehicle on which it is carried and this forwardly projected portion of the mechanism is susceptible of being angled axially so that the plane of the cutting may be laterally manipulated by the handle by which the machine is pushed forward. This manipulation of the revolving knife taken in conjunction with the facility of movement of the vehicle on which it is carried affords the desired mobility for the purpose required.

The invention is particularly described in the following specification, and illustrated in the drawings by which it is accompanied, in which:

Figure 1 is a side elevation with near wheel removed, Fig. 2, a plan, Fig. 3, an end elevation and part section on the line A A in Fig. 1 and, Fig. 4, a detail of the guard for the cutting knife. Figs. 5 and 6 are detail views showing manner of adjustably pivoting the knife carrying member 16 to the end of the rod 10.

Mounted on the axle which connects a pair of light independently movable wheels 2 is a frame 3, having guides 4 adjacent to the axle, within which guides are vertically slidable, by means of a screw and hand wheel 5, columns 6 supporting a bearing 7 which carries a tubular member 10 in a manner that the member 10 is susceptible of partial rotation in the bearing. The back end of the member 10 is carried in a bearing 11 which is mounted on trunnions in a backwardly projecting portion of the frame 3 so that as the bearing 7 is raised or lowered by the screw 5 the bearing 11 will adapt itself to the elevation or depression.

Secured to the tubular member 10 is a motor frame 12 which carries the knife operating motor 13 and also checks endwise movement of the member 10 in the bearing 7. The frame 12, as before stated, is secured to the tubular member 10 to turn therewith and the member 12 engages both ends of the bearing 7, thus the member 10 and its attached frame 12 may be oscillated with relation to the bearing 7 but endwise movement of the member 10 in the bearing 7 will be prevented by the frame 12 abutting the ends of the bearing 7.

The circular cutting knife 15 is eccentrically mounted in a member 16 hinged to the forwardly projecting end of the tubular member 10 and is driven from the motor 13 by a shaft 17 through a universal joint 18 and bevel gears 19. The member 16 may be set by means of a segment 14 to any desired angle in relation to the tubular member 10 on the end of which such member 16 is carried without alteration of the drive mechanism, the member 16 being secured in its adjustments by the set screw 16* engaging the segment 14 which passes through a slot in the bearing member 16* that is carried on the tubular member 10.

On the after end of the tubular member 10 is pivotally mounted a handle 25 in a manner that will permit of the handle being adjusted in its height from the ground as shown by dot and dash lines in Fig. 1.

With this construction the cutting knife may by means of the handle 25 be manipulated either laterally or vertically by the movement of the vehicle frame on its wheels, and in addition the tubular member 10 carrying the revolving knife and its motor, may be angled axially to either side as indicated by the dot and dash lines in Figs. 1

and 3, which facility of lateral angular movement enables the cutting plane of the knife to be applied in the most advantageous manner to the canes which may happen to be inclined to the ground, or to be turned as shown by dot and dash lines in Fig. 1 to strip the leaves. The angling of the cutting knife downward enables a favorable oblique cut to be made or brings the knife to an approximately horizontal plane when it is elevated for topping.

For stripping or topping, a guard 20 is removably secured to the hinged member 16 adjacent to the plane of rotation of the knife 15, as shown in Fig. 4, which guard is provided with gullets 21 angled inward in the direction of rotation of the knife so as to secure and hold up to the cut of the knife leaves or canes which when stripping or topping might spring away from it. The depth of these gullets corresponds approximately to the eccentric throw of the knife.

Pivotaly mounted on the axle frame 3 and angled upward therefrom is a guard 22 designed to shed the cut canes clear of the machine. As it is desired to shed them to one side of the machine the guard as shown in Fig. 2 is angled backward from one side to the other. It is adjustably supported by a tie rod 23 from an upward extension 24 of the frame 3 which tie rod is flexibly connected to the guard and notched or otherwise rendered adjustable in its connection to 24.

The gears 19 and universal joint are protected from entanglement with the cut leaves or herbage by a shield 26 and the wheel centers are either constructed of thin sheet metal disks or if made with spokes they are provided with thin sheet metal disks that will prevent the herbage from getting entangled with the spokes.

Having now particularly described my invention and the manner of its use, I hereby declare that what I claim as new and desire to be protected in by Letters Patent, is:

1. In a machine of the class described, a wheeled vehicle, an arm projecting therefrom, a rotatable knife mounted at the end of said arm and means whereby the knife carrying end of said arm may be raised or lowered with relation to the rest of the arm, and means whereby the entire arm may be raised or lowered on the axis of the vehicle as a pivot and swung laterally with relation to the vehicle on which it is carried.

2. In a machine of the class described, a wheeled vehicle frame having independently movable wheels, an arm forwardly projecting from the wheeled frame, said arm being susceptible of rotation in its mounting on the wheeled frame, a member hinged to the projecting end of said arm and a circular knife rotatably mounted on said member.

3. In a machine of the class described, a wheeled vehicle frame having independently movable wheels, an arm forwardly projecting from the wheeled frame, said arm being susceptible of rotation in its mounting on the wheeled frame, a member hinged to the projecting end of said arm, a circular knife rotatably mounted on said member, and means for imparting rotary movement to such knife.

4. In a machine of the class described, a wheeled frame, an arm mounted in bearings in said frame to be susceptible of angular movement on its axis, a circular knife rotatably mounted at the forward end of said arm, means carried by said arm through the medium of which the knife carrying end of the arm may be elevated or depressed, or axially angled and by which the vehicle may be handled.

5. In a machine of the class described, a wheeled vehicle, a vertically adjustable frame mounted on said wheeled vehicle, an arm carried by said frame and rotatable in bearings of the frame, a motor mounted on said arm, a frame hinged to the forward end of the arm and a circular knife rotatably mounted on said last named frame and means for transmitting motion from the motor to the knife to operate the same.

6. In a machine of the class described, a wheeled vehicle, a vertically adjustable frame mounted on said wheeled vehicle, an arm carried by said frame and rotatable in bearings of the frame, a motor mounted on said arm, a frame hinged to the forward end of the arm, a circular knife rotatably mounted on said last named frame, means for transmitting motion from the motor to the knife to operate the same, a handle secured to said arm by means of which the arm may be manipulated.

7. In a machine of the class described, a wheeled frame having independent operating wheels, a vertically adjustable arm carrying frame mounted in the wheeled frame, means for adjusting said arm carrying frame, said arm carrying frame having a bearing, an arm rotatably mounted in said bearing, means for preventing longitudinal movement of the arm in said bearing, a rotatable knife mounted at the forward end of said arm, and a handle member connected with said arm through the medium of which it may be manipulated.

8. In a machine of the class described, a wheeled frame having independent operating wheels, a vertically adjustable arm carrying frame mounted in the wheeled frame, means for adjusting said arm carrying frame, said arm carrying frame having a bearing, an arm rotatably mounted in said bearing, means for preventing longitudinal movement of the arm in said bearing, a rotatable knife mounted at the forward end

of said arm, a handle member connected
with said arm through the medium of which
it may be manipulated, a motor secured to
said arm to turn therewith, and means for
5 transmitting motion from the motor to the
rotatable knife to operate the same.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

JOHN R. BROWN.

Witnesses:

ROWLAND BRITTAIN,
CLIVE S. CARMAN.