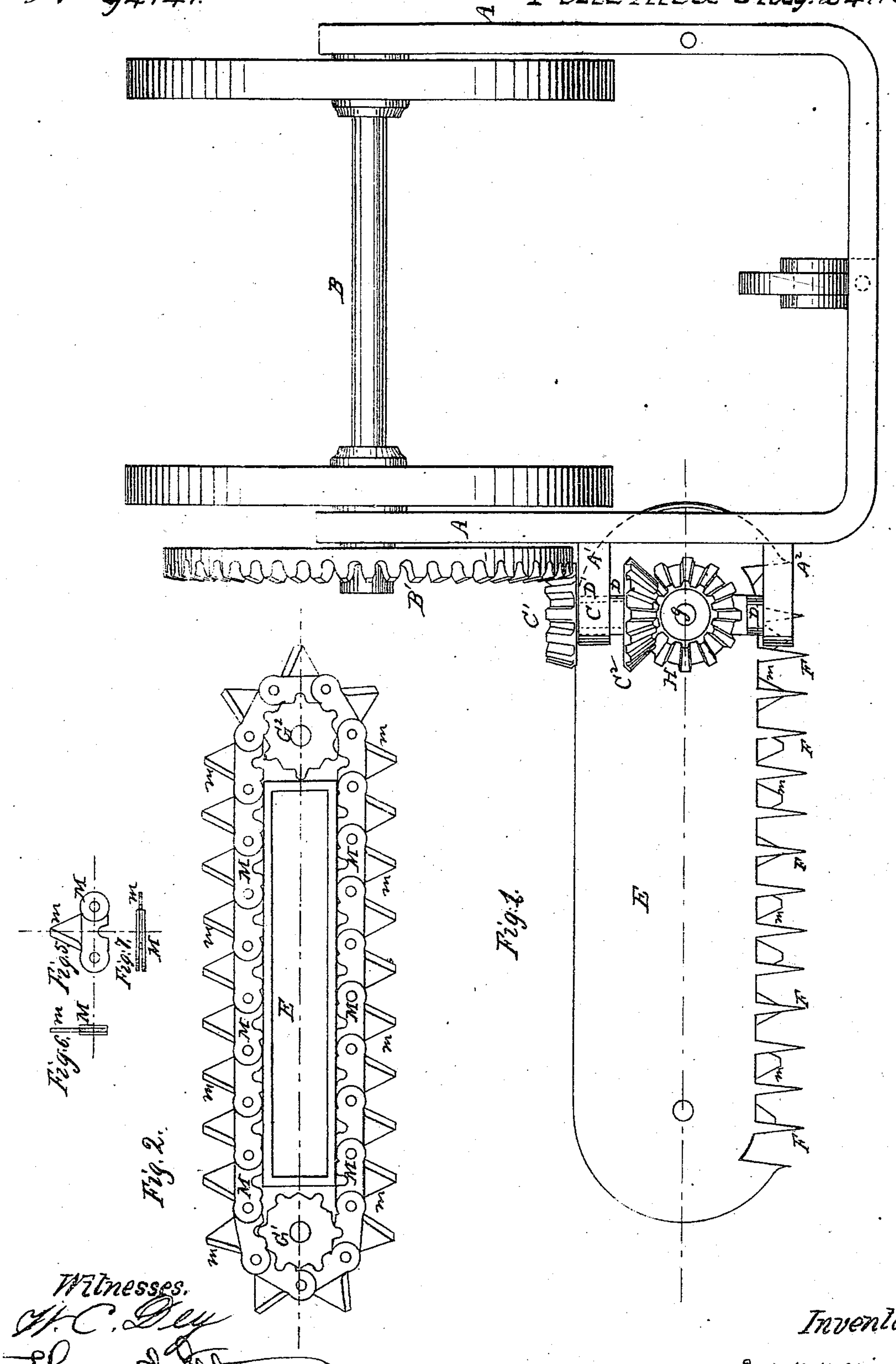
Sheet 1. 2 Sheets.

W. H. H. Sisum.

Mower.

No. 94141. Patented Aug. 24. 1869.



Witnesses.

H. C. Dey

Thomas S. Stetson

Inventor.

Wm H H Sisum

Sheet 2 - 2 Sheets.

W. H. H. Sisum.

Mower.

No. 94141. Patented Aug. 24. 1869

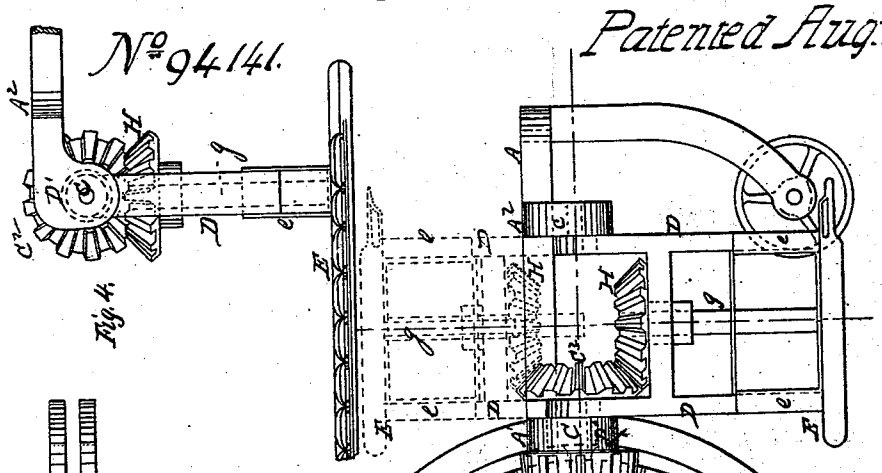


Fig. 4.

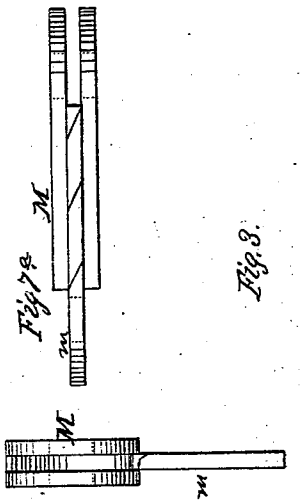


Fig. 2a

Fig. 3.

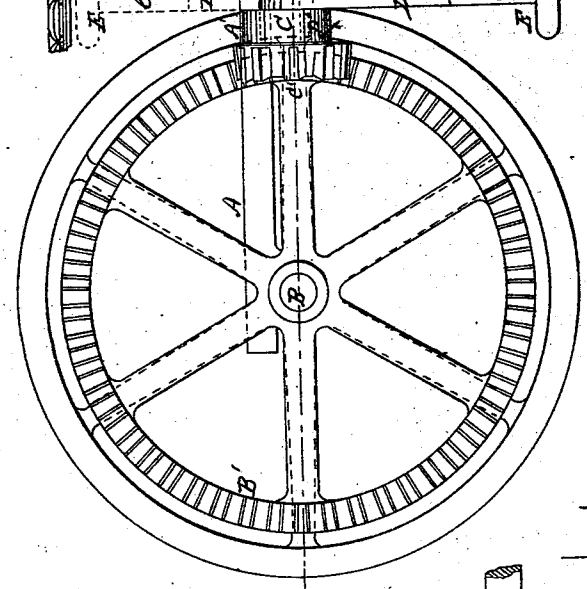


Fig. 6a

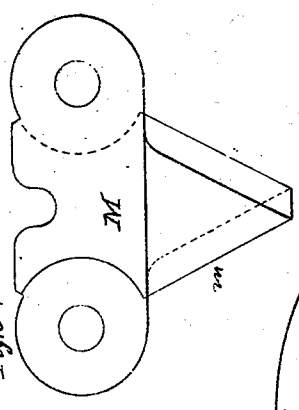


Fig. 5a

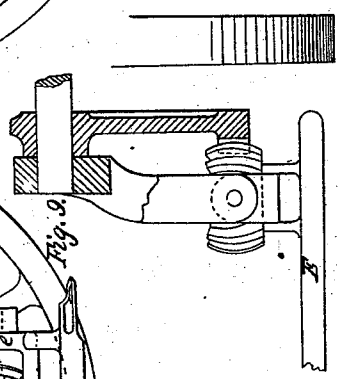


Fig. 9.

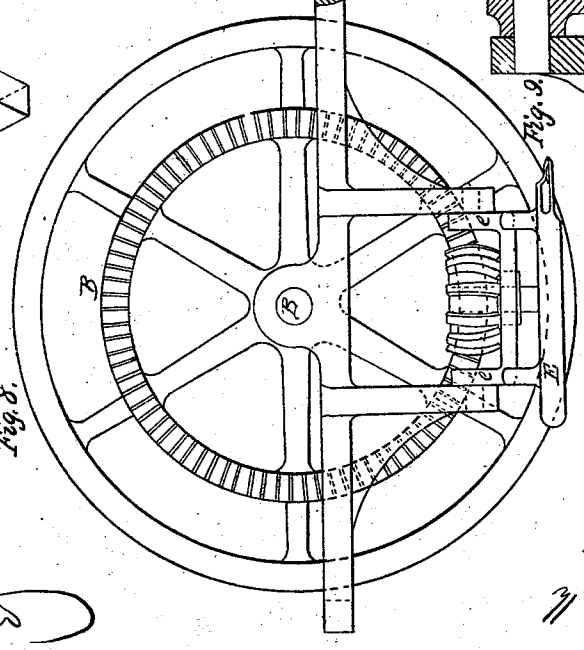


Fig. 8.

Witnesses.

W. C. Dey

Thomas G. Orton

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United States Patent Office.

WILLIAM H. H. SISUM, OF CHERRY VALLEY, NEW YORK.

Letters Patent No. 94,141, *dated August* 24, 1869; *antedated August* 20, 1869.

IMPROVEMENT IN HARVESTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM H. H. SISUM, of Cherry Valley, Otsego county, in the State of New York, have invented certain new and useful Improvement in Machines for Mowing and Harvesting; and I do hereby declare that the following is a full and exact description thereof.

Machines for mowing and analogous work have been proposed, in which the cutters are carried on an endless chain, and moved continuously in one direction, instead of reciprocating. My invention consists in certain improvements in this class of machines.

I will first describe what I consider the best means of carrying out my invention, and will afterward describe the points which I believe to be new.

The accompanying drawings form a part of this specification.

Figure 1 is a plan view showing the novel parts of the machine, with so much of the ordinary parts as seem necessary to show their relation thereto.

Figure 2 is a plan view of the chain of cutters, the casing being represented as open, to exhibit its interior.

Figure 3 is a side view, showing the main parts of the entire machine.

Figure 4 is an end view of a part of the mechanism.

Figures 5, 6, and 7, show a link of the chain detached, fig. 5 being a plan view, fig. 6 an edge view, and fig. 7 a view from the inside of the chain.

Figures 5^a, 6^a, and 7^a, show the same on a larger scale.

Figures 8 and 9 represent a modification which may be made in the construction of some of the parts, fig. 8 being a side view of the drive-wheel and the gearing communicating motion to the cutters, and fig. 9 being a front view and partial cross-section of the same.

Similar letters of reference indicate corresponding parts in all the figures.

A is the main frame-work, and

B, the main shaft of the machine.

The weight is supported as usual, on wheels fixed upon the main shaft, which may be provided with projections upon the periphery as usual, to increase their adhesion to the ground, and compel their rotation.

The motion is communicated to the cutters through a large bevel-gear wheel, B', fixed upon the shaft B, which gears into the small bevel-gear wheel c', and thus communicates motion through the shaft C to the bevel-gear wheel C^2.

It will be observed that there are two arms, A^1 A^2, which project outward from the frame-work A.

The swinging frame D is hinged to these arms, and this frame D and its connections support and convey motion to the cutters below.

The shaft C has its bearing in the boss D'. This boss D', shown in dotted lines in figs. 1, 3, and 4, extends outward from the frame D, through the arm A^1, and forms the hinge for one side of the frame D.

A pin, c, forms the hinge for the other side of the frame D. In other words, the frame D is capable of turning or swinging upon an axis coincident with the prolonged axis of the shaft C.

E is a casing of sufficient length and breadth, but of very little vertical depth. In this casing is carried the endless chain M, and the attached cutters m, with the sprocket-wheels around which it runs.

The frame E is connected to the frame D by vertical slides, at e e, so that it may rise and sink as required.

There may be a chain or other suitable connection, operated by a hand-lever or otherwise, to control the vertical motion of the frame E upon the frame D if desired.

The front edge of the frame E is provided with guard-fingers F adapted to slide upon the ground, and to rise and lift the apparatus gently over any swells in the ground or any small obstruction, performing, in this respect, the ordinary function of guard-fingers for harvester-teeth.

I have marked the endless chain M. It is formed of links connected together by rivets in the obvious manner, carrying on each link a triangular cutter, m.

The interior edges of the links are deeply indented or recessed, as represented, to allow the teeth of the sprocket-wheels G^1 G^2 to be received therein, and convey a positive and strong motion thereto. The wheel G^1 is the driving-wheel; the other, G^2, serves merely as an idle pulley, around which the chain is stretched.

The wheel G^1 is rotated by means of the shaft g, which extends upward through the bevel-gear wheel H, which latter receives motion from the bevel-gear wheel C^2, before described.

The shaft g is feathered in the wheel H, so that it may rise and sink therein freely, but will always be revolved thereby. The shaft g is exactly in the plane of the axis of motion of the swinging frame D.

It will be seen, from this arrangement, that the frame E and its connections may rise and sink by the sliding of the part E vertically upon the frame D, and that it may also swing; that is to say, the whole of the part E and its connections, as also the whole of the frame D and its connections, may swing or turn upon the axis C c. The construction of the parts is such that my frame or case E, and its contents, may be lifted, not only into a vertical position, but the lifting may be carried still further, and it may be swung quite over upon the frame A. This position is illustrated in red outline in fig. 3, and is a very desirable position in which to transport the working-parts in travelling from one field to another. A clutch, not represented, may be employed to throw the working-parts out of gear, so that the chain and cutters shall not operate

under such circumstances. In case this appendage is omitted, the cutters may be allowed to traverse in their elevated position for a considerable period without serious damage.

I fix the guard-fingers F at uniform distances apart, and I fix the points of the cutters at uniform distances apart; but the distance between the points of the cutters is greater than the distance between the centres of the guard-fingers. In other words, the spaces between the knives and the spaces between the fingers do not agree. It follows that the resistance due to the mowing is not experienced on all the cutters at the same time, but the strain is distributed. While one cutter has compressed its grass against the guard-finger, and is exerting its maximum force in cutting, another on one side is just commencing to compress the grass, and another, a little on the other side, has just completed its cut. I esteem this distribution of the strain, so that it shall be nearly uniform at all times upon the chain, a very important feature of my invention.

It will be readily seen, that by this mode of operating cutters, only one edge of each cutter is made available at one time; but I so construct my chain of cutters that it may be turned over, and the other edge of each cutter used, so soon as the first edge has become dull. To effect this, it is necessary that the edges should be bevelled in opposite directions, as is illustrated in figs. 5^a, 6^a, and 7^a. Observe, I do not reverse the motion of my chain of cutters in the case E. On the contrary, the motion of the chain of cutters is always in the same direction, preferably toward the main frame A. But by opening the case E, which may be readily done by the removal of a few screw-bolts, and lifting the chain of cutters out, and turning it entirely over, and re-enclosing it in the case E, I am able to use the new edges, properly bevelled for this change of position, and thus to run successfully for many hours longer.

In grinding my cutters, the folding of the chain greatly facilitates the presentation of each cutting-edge to be ground on an ordinary grindstone.

It will, of course, be observed that the chain of cutters must be made with the cutting-blade in the centre of the thickness of the chain, in order to allow it to be successfully reversed. I do not esteem it absolutely essential to the success of other features of my invention that the chain be made thus reversible; but I esteem it an important means of increasing the usefulness of the machine.

I do not confine myself to making the frame-work A of metal, nor to mounting the swinging frame D and its connections in the exact position here indicated. Figs. 8 and 9 show a modification of the construction, which may for some reasons be preferred. In this modification, the frame-work A extends outside of the driving-gear B'. This gear-wheel B' is made smaller, and the arms, corresponding to the arms A^1 and A^2, extend down further. The frame D is in this case shorter. The gear-wheel H, on the top of the shaft *g*, gears directly into the gear-wheel B'. In such case, the frame E and its connections cannot, of course, swing over into the horizontal position; but can be turned up into a vertical position, and can be held there by any suitable hook or other fastening. To facilitate this change of position, I should, in such case, make the wheel H in a form approximating to a sphere.

I propose to balance, or partially balance the machine by the weight of the driver, and to adopt any approved arrangement of reels, rakers, or the like, to dispose of the grain in gavels or otherwise, when my machine is used for reaping. Ordinarily the front of the machine will be the heaviest, and I have represented it as supported by a single small wheel mounted in a swivelling stand.

The animals may be attached in any approved manner.

Having now fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In combination with the endless chain M *m*, casing E, enclosing the same and allowing the cutters to protrude, the frame-work D, gear-wheels H and B', and the hinged joint C *c*, so arranged that the chain of cutters and their connections may be turned upon the axis C *c*, and thus raised out of contact with the ground, for convenient travelling, substantially as and for the purposes herein set forth.

2. Constructing the endless chain of harvesting-cutters M *m*, with the cutters *m* mounted centrally in the thickness of the chain M, and bevelled in opposite directions on the opposite cutting-edges, so that the chain may be reversed in position and both edges made available, substantially in the manner and for the purposes herein set forth.

In testimony whereof, I have hereunto set my name, in the presence of two subscribing witnesses.

WM. H. H. SISUM.

Witnesses:

WM. H. SAMPSON,

THOMAS D. STETSON.