

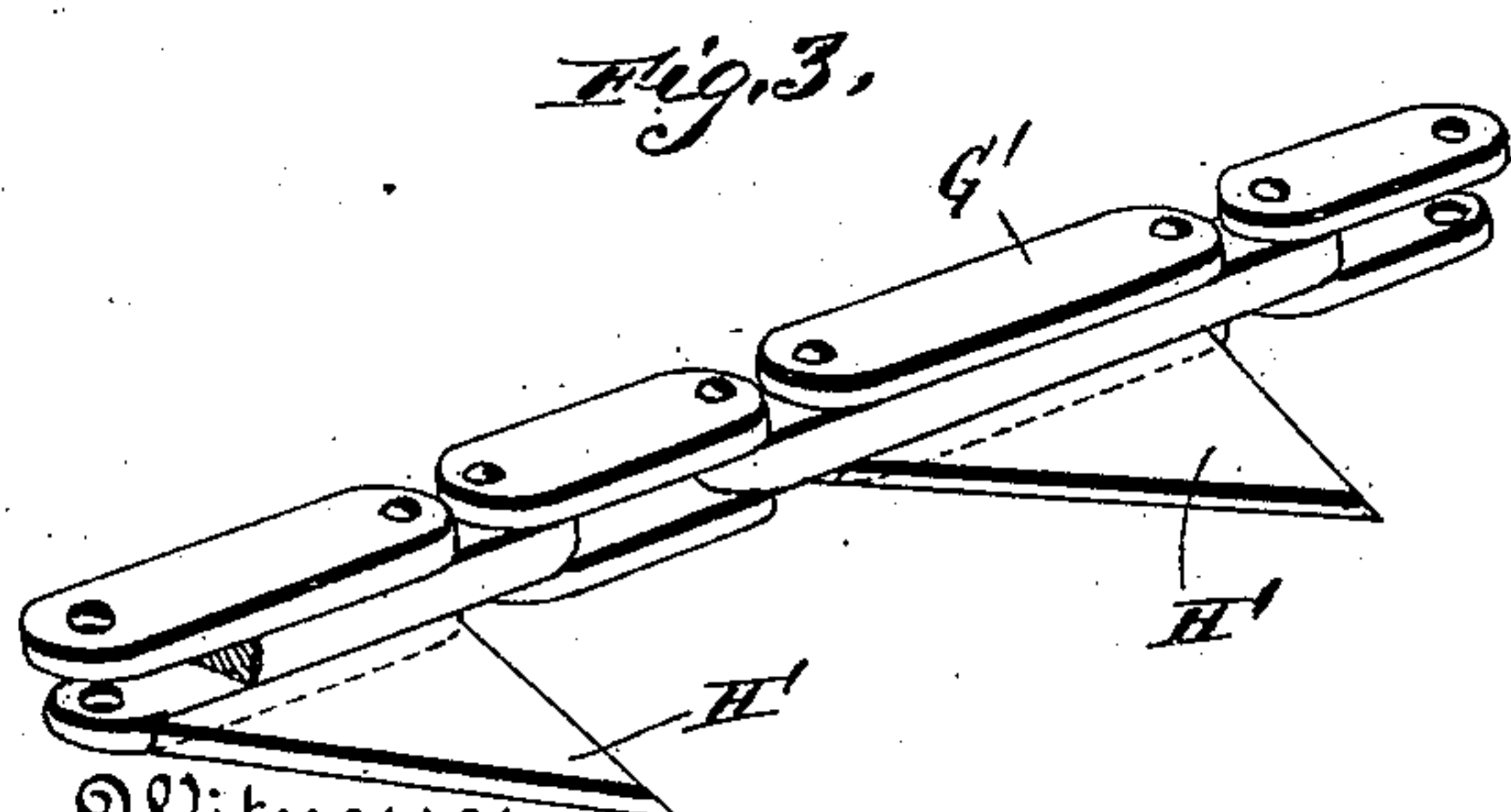
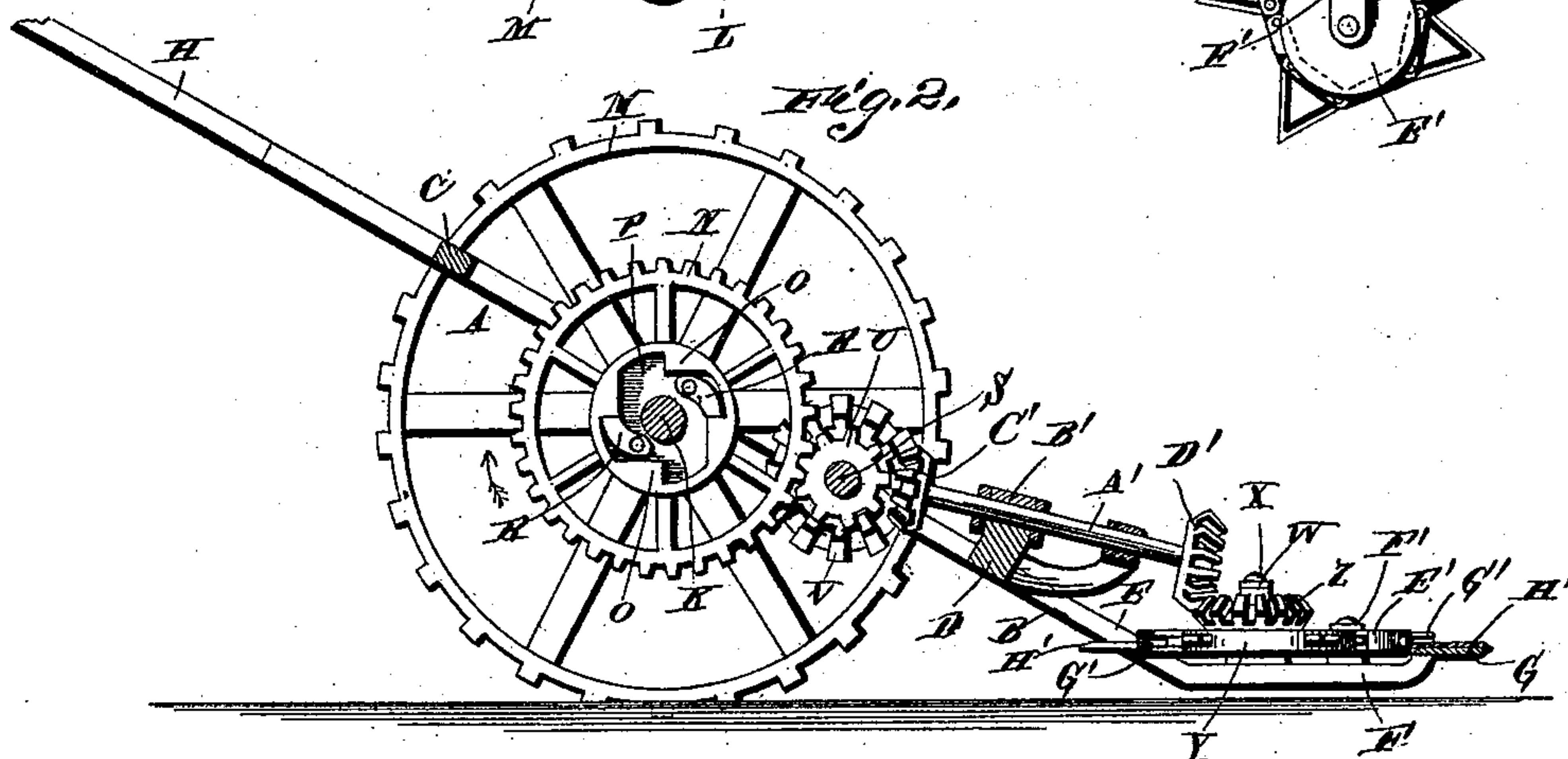
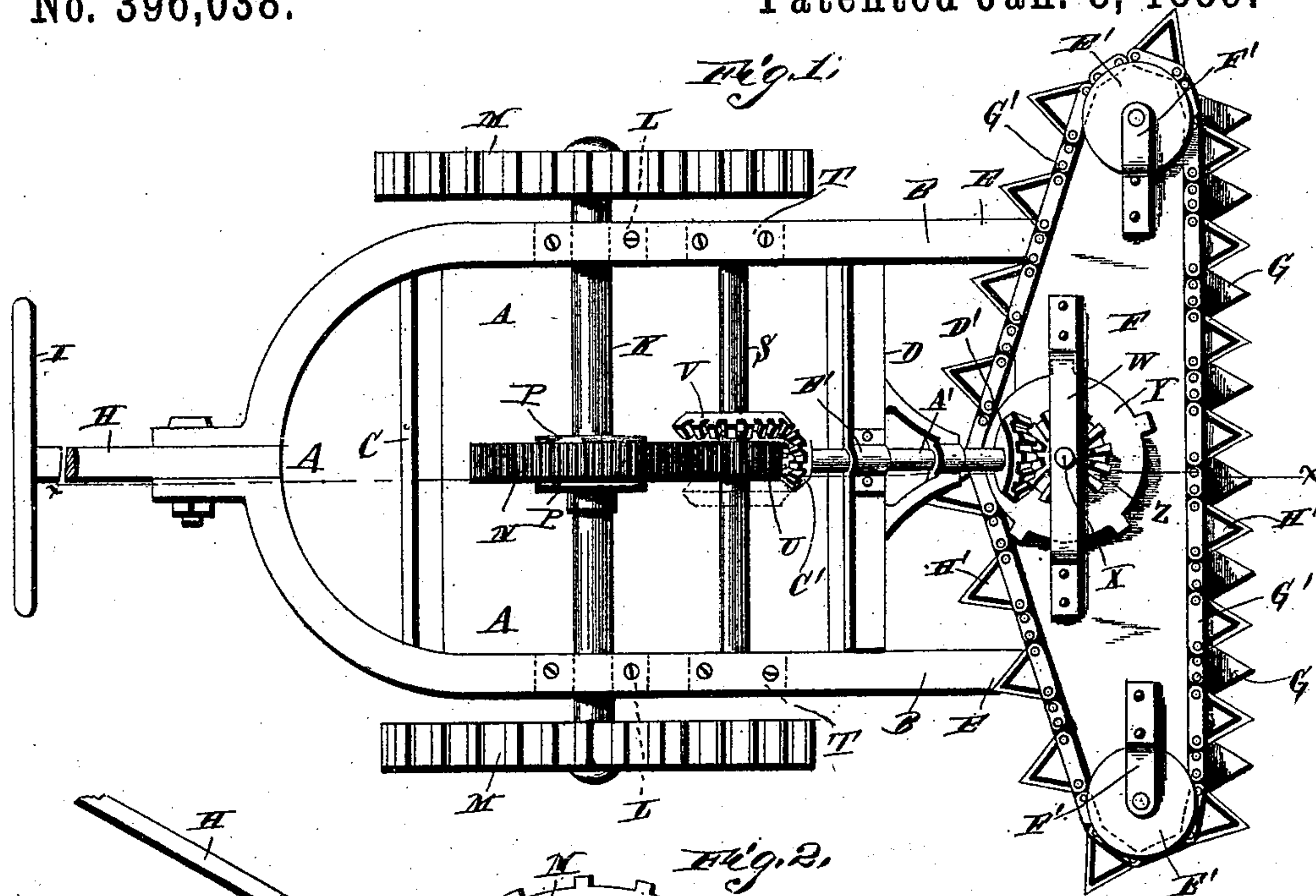
(No Model.)

L. D. HALL.

LAWN MOWER.

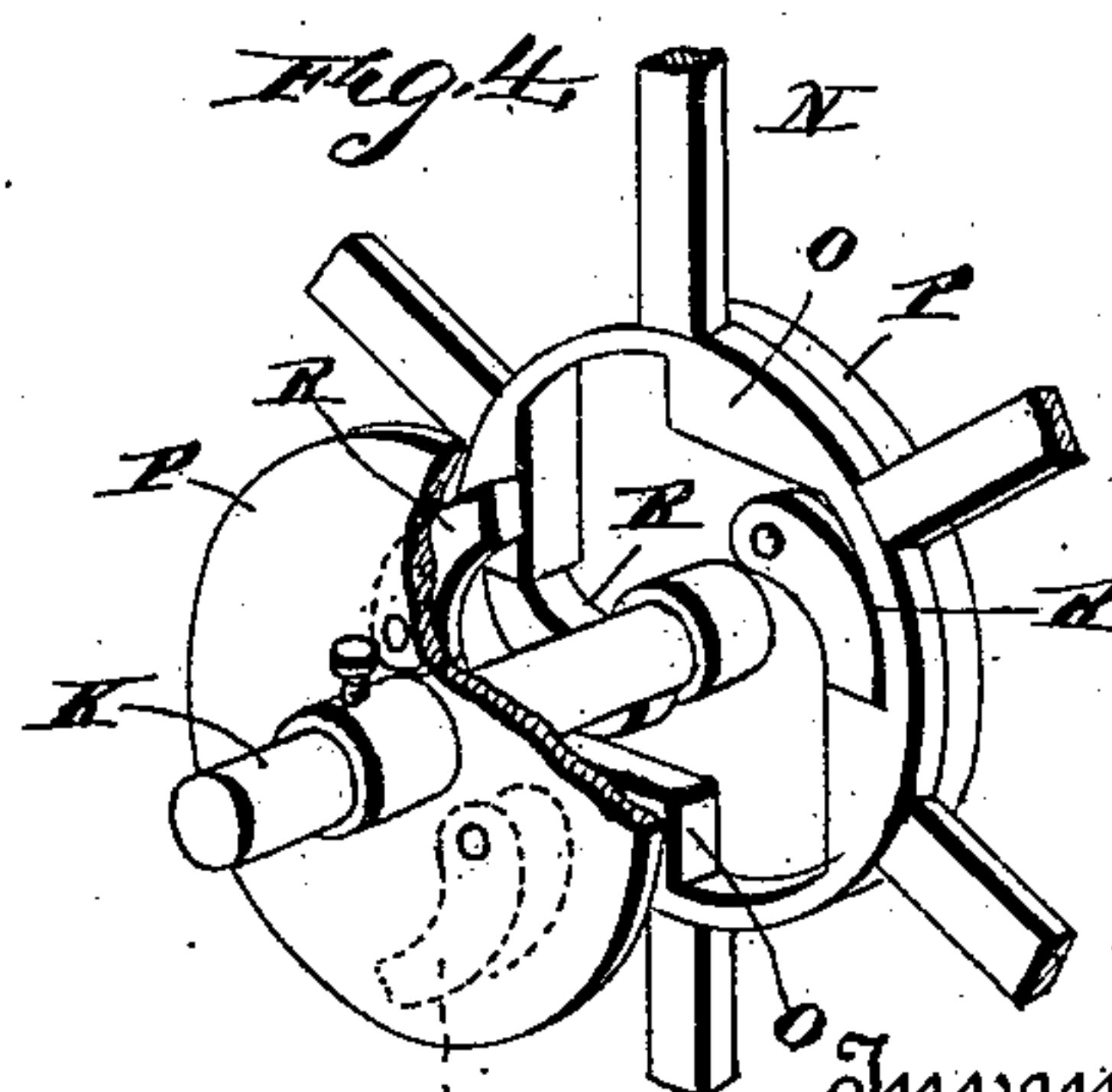
No. 396,038.

Patented Jan. 8, 1889.



Witnesses.

G. B. Taylor,
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Inventor.

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UNITED STATES PATENT OFFICE.

LEWIS D. HALL, OF CONCORDIA, KANSAS, ASSIGNOR OF ONE-HALF TO S.
D. HOUSTON, JR., OF SAME PLACE.

LAWN-MOWER.

SPECIFICATION forming part of Letters Patent No. 396,038, dated January 8, 1889.

Application filed October 13, 1887. Serial No. 252,238. (No model.)

To all whom it may concern:

Be it known that I, LEWIS D. HALL, a citizen of the United States, residing at Concordia, in the county of Cloud and State of Kansas, have invented a new and useful Improvement in Lawn-Mowers, of which the following is a specification.

Our invention relates to an improvement in lawn-mowers; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of a lawn-mower embodying my improvements. Fig. 2 is a vertical longitudinal sectional view of the same, taken on the line *x x* of Fig. 1. Fig. 3 is a detail view of a portion of the chain. Fig. 4 is a detail view of a portion of the spur-wheel N.

A represents the main frame, which comprises the parallel side arms, B, having their rear ends curved inward and approaching each other, and the bars C and D, which are arranged at right angles to the side bars and serve to connect the same. The lower ends of the bars B are bent at suitable angles and form forwardly-extending arms E, on which is secured a transversely-arranged finger or plate, F, the ends of which project beyond the sides of the frame. This finger-plate has its ends rounded and its rear side forming an obtuse angle, as shown in Fig. 1. To the front side of the finger-plate are attached a series of fingers, G, which are V-shaped and project forward from the finger-plate, as shown, and have their projecting forward converging edges beveled on their under sides. These fingers also perform the same office as the ledger-plates usually employed in this class of machines.

H represents a push rod or handle, the front end of which is bolted between the rear curved ends of the side bars, B. To the rear ends of this push-rod is attached a transverse cross-bar, I.

K represents a shaft which is journaled in bearing-blocks L, bolted to the under sides of the bars B at a suitable distance from the front ends of the said bars. To the projecting ends of this shaft are secured driving-

wheels M. To the center of the shaft K is loosely secured a spur-wheel, N, which is provided at its center on both sides with a series of ratchet-teeth, O.

P represents a pair of disks which are rigidly attached to the shaft K and bear against opposite sides of the wheel N. To these disks are pivoted pawls R, which are adapted to engage the ratchet-teeth of the wheel N when the shaft is turned in the direction indicated by the arrow in Fig. 2, when the machine is moved forward, and thereby cause the wheel N to rotate with the shaft. When the machine is backed and the rotation of the shaft K is reversed, the pawls slip idly on the ratchet-teeth O and permit the wheel N to remain stationary on the shaft, as will be readily understood.

S represents a counter-shaft which is journaled in bearing-blocks T, bolted to the under side of bars B, and is arranged parallel with and at a suitable distance in advance of the shaft K. To the center of this shaft S is rigidly attached a pinion, U, which meshes with the wheel N, and on the said shaft is detachably secured a miter-wheel, V, which is adapted to be attached to the shaft S in such a manner as to bear against either side of the pinion U, as indicated in dotted lines in Fig. 1.

To the upper side of the finger-plate F, at the center thereof, is secured a strap or spanner, W.

X represents a short vertical shaft, which is journaled in the spanner and in the head F, and to this shaft is attached a sprocket-wheel, Y, which bears horizontally on the finger-plate, and a miter-wheel, Z, on the upper side of wheel Y.

A' represents a longitudinally-arranged shaft, the front end of which is journaled in a bearing that projects from the center of the bar D, and the rear portion of which is journaled in a bearing, B', bolted to the upper side of bar D at the center thereof. To the rear end of this shaft is rigidly attached a miter-pinion, C', which meshes with the miter-wheel V, and to the front end of the shaft A' is attached a miter-wheel, D', which meshes with the miter-wheel Z.

On the ends of the finger-plate are mounted grooved pulleys E', the axles of which are secured in the finger-plate and in straps F', which are bolted to the upper side of the said finger-plate and extend over the pulleys.

G' represents an endless chain, which passes around the pulleys E' and the rear side of the sprocket-wheel Y, and is engaged by the teeth of the latter. To this chain, at suitable regular distances apart, are attached cutters H', which are similar in size and shape to the fingers G and have their edges beveled on their upper sides.

From the foregoing description, and by reference to Figs. 1 and 2, it will be understood that when the machine is moved forward the rotation of the shaft K will be communicated to the shaft S and from the latter to the shaft A', and will cause the cutters to pass continuously over the fingers.

When the cutting-edges on one side of the fingers and of the cutters become worn, the miter-wheel V is removed from the shaft S and replaced thereon in a position reverse to that which it formerly occupied on the said shaft, as indicated in dotted lines in Fig. 1. When the wheel V is thus reversed on the shaft, it causes the endless chain and its cutter-plate to operate in a reverse direction from that in which they formerly operated, thereby bringing the hitherto unused cutting-edges of the cutters and the fingers into use, and thereby greatly increasing the durability of the machine.

It will be observed by reference to Fig. 1 that all the gearing is arranged in the center of the machine. This is advantageous in preventing side draft and in causing the machinery to operate smoothly and with a minimum amount of friction.

A lawn-mower thus constructed is adapted to cut grass of any height and to leave stubble of any height desired, can be operated in close proximity to trees and other obstructions, and can be run under the base-rails of fences when the same are at a slight elevation above the ground, and thus keep the grass mowed clear under the fences.

Having thus described my invention, I claim—

1. The combination, in a mower, of the frame having the finger-plate at its front end, the pulleys on the ends of the said finger-plate, the fingers secured to the front side of the finger-plate, the sprocket-wheel arranged on the finger-plate, the miter-wheel Z, secured to the said sprocket-wheel, the endless chain engaging the sprocket-wheel and passing around the pulleys, the cutters attached to the said endless chain and adapted to pass continuously over the fingers, the driving-shaft journaled in the frame and having the gear-wheel N at its center, the shaft S, arranged in front of the driving-shaft and having the pinion engaging with the gear-wheel and adapted to be reversed on shaft S, for the purpose set forth, and the longitudinally-arranged shaft A', midway between the sides of the frame, having the miter-wheel at its front end engaging the wheel Z and the miter-wheel at its rear end engaging the wheel V, substantially as described,

2. The combination of the frame, the driving-shaft journaled therein, the shaft S, geared to the driving-shaft, the plate arranged at the front end of the frame and having the fingers sharpened on their projecting converging edges, the endless sprocket-chain on the plate, having the cutters H' sharpened on their projecting converging edges, the sprocket-wheel arranged at the center of the plate and engaging the sprocket-chain to drive the latter, the longitudinal shaft A', arranged in the center of the frame, gears D' and Z, connecting the same with the sprocket-wheel, and gears C' and V, connecting shaft A' with the driving-shaft, the said gear V being adapted to be reversed on shaft S to operate the sprocket-chain in either direction, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

LEWIS D. HALL.

Witnesses:

EDWARD MARSHALL,
L. N. HOUSTON.