

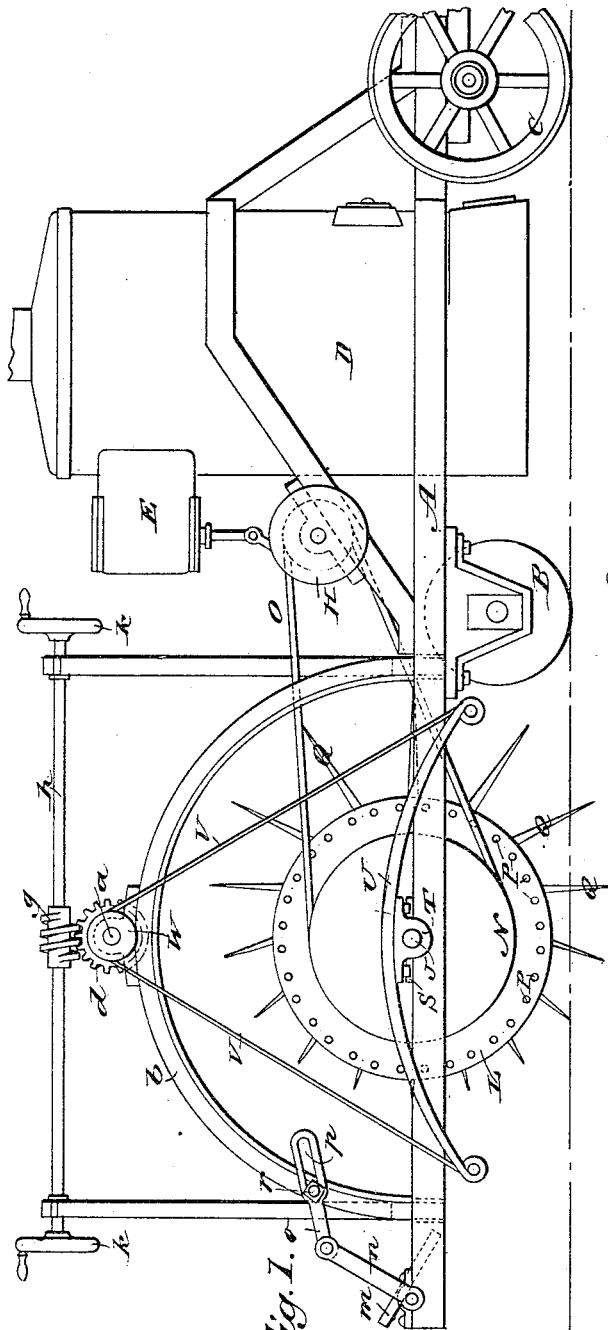
(No Model.)

2 Sheets—Sheet 1.

W. LAY.
STEAM PLOW.

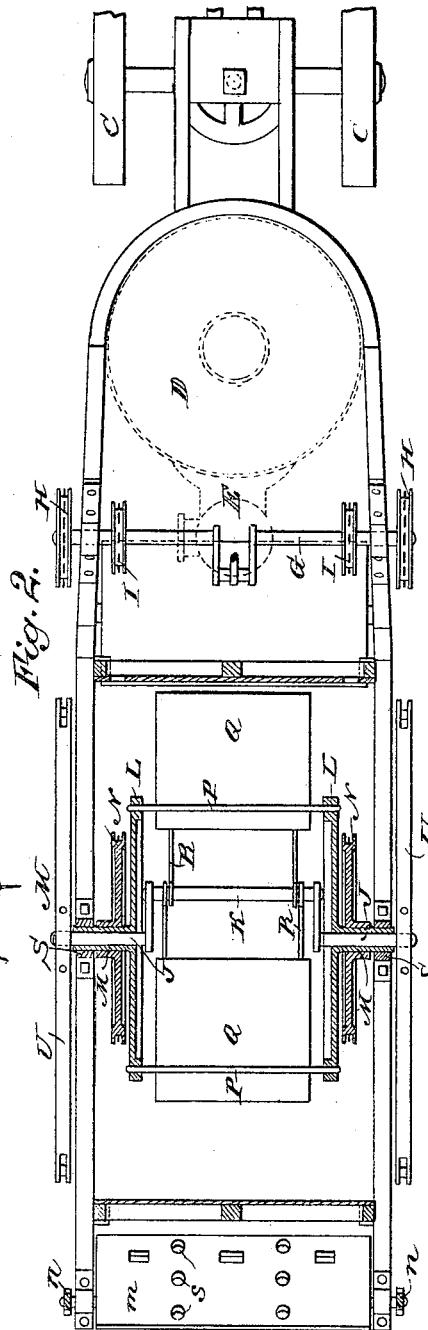
No. 348,401.

Patented Aug. 31, 1886.



WITNESSES:

Prober
C. Sedgwick



INVENTOR:

BY *Munn & Co*
ATTORNEYS.

(No Model.)

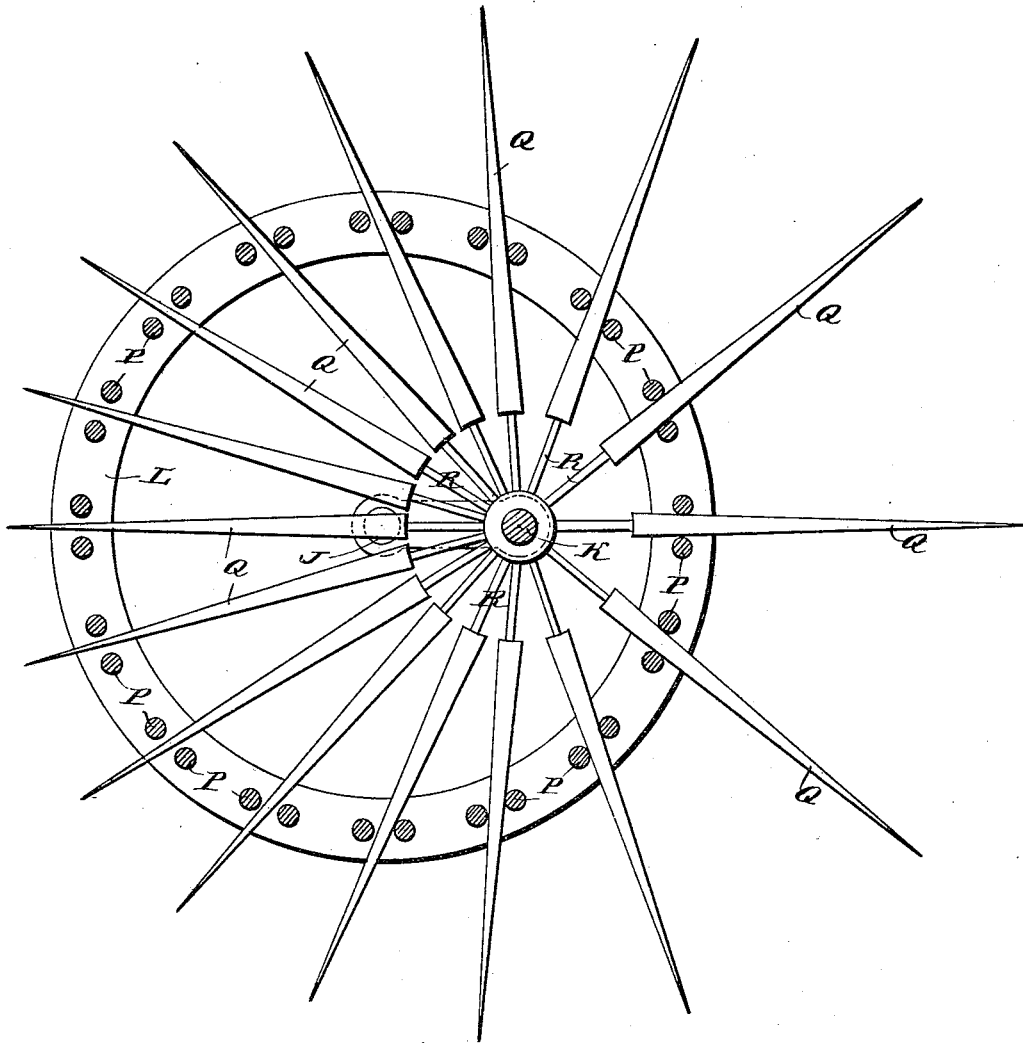
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Fig. 3.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM LAY, OF OMAHA, TEXAS.

STEAM-PLOW.

SPECIFICATION forming part of Letters Patent No. 348,401, dated August 31, 1886.

Application filed January 2, 1886. Serial No. 187,495. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LAY, of Omaha, in the county of Morris and State of Texas, have invented a new and Improved Steam-Plow, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved steam-plow, which is simple in construction, has great tractive force, cannot slip, and plows very rapidly and perfectly.

The invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of my improved steam-plow, parts being broken out. Fig. 2 is a sectional plan view of the same, parts being broken out. Fig. 3 is a detail longitudinal sectional view of the shovel-wheel and the shovel in the same.

The frame A is secured on axles, on which the wheels B and C are mounted, the front wheels, C, being the steering-wheels. On said frame the steam-boiler D and the engine E are mounted, and the said engine revolves the transverse shaft G, on the ends of which the sprocket-wheels I and balance-wheels H are mounted.

On the frame A the transverse shaft J is journaled, which is provided with the crank K within the frame A—that is, between the side pieces of the same—and on the ends of the shaft J the disks L are loosely mounted, which are provided with the sleeves M, through which the end parts of the shaft J pass, and on each of said sleeves a sprocket-wheel, N, is rigidly mounted, over which a driving-chain, O, passes, which is also passed over one of the sprocket-wheels on the shaft G, so that the said disks are revolved from the engine. The disks L are united by a series of pairs of rods, P, which are secured on the disks at the rim, and through the spaces between the rods P of the several pairs the flat shovels Q are passed, which are secured to the outer ends of rods R, which have their inner ends mounted to turn on the crank K. The shovels decrease in thickness from their inner toward their outer

edges, as shown in Fig. 3. The said shovels are thus mounted eccentrically to the disks L. The outer ends of the sleeves M are journaled in the boxes S on the upper edges of the side bars of the frame A, as shown in Fig. 2. The outer ends of the shaft J are secured rigidly in blocks T, secured on the bottom edges of segmental or bow springs U at the centers of said springs.

To the ends of each spring U the ends of a chain, V, are secured, which chains are passed over sprocket-wheels W on the ends of a shaft, a, mounted to revolve on the centers of curved frames b, secured to and projecting upward from the side bars of the frame A.

On the center of the shaft a the worm-wheel d is mounted, which engages with the worm g on a shaft, h, at right angles to and above the shaft a, which shaft h is provided with the hand-wheels k, for turning it.

Between the rear end parts of the side bars of the frame A the plate m is pivoted, and to the outer ends of the pivots of said plate the arms n are secured, which are connected with the bars o, provided with the longitudinal slots p, through which the locking-bolts r are passed into the curved frames b, thus permitting of locking the bars o in the desired position, according to the desired inclination of the plate m. Said plate m is provided with a series of apertures, s, for fastening bars on which plows or a suitable ground-pulverizer or land-roller is held, which is thus dragged behind the frame A.

The operation is as follows: The disks L are revolved from the engine, and the blades or shovels Q are carried around by the rods P on said disks, the crank K remaining stationary. The shovels revolve eccentrically to the disks L, and thus the said shovels are forced into the ground vertically, and are then drawn out of the ground in an inclined position, and thus loosen and raise the ground, and at the same time propel the plow forward. The shovels are thus successively pushed out beyond the edges of the disks L and then withdrawn, and so on. The successive positions of the shovels in the ground are shown in Fig. 1.

The parts can be so adjusted that the shovels are forced a greater or less distance into the ground, or not at all, as may be desired or necessary. To accomplish this the shaft h is

turned in such a manner as to revolve the shaft *a*, whereby the chains *V* are moved to raise the front or rear ends of the springs *U*. When the rear ends of the said springs *U* are raised, the crank *K* is lowered, and then the shovels penetrate farther into the ground, and when the front ends of the springs *U* are raised the crank *K* is moved up and the shovels penetrate less into the ground.

10 Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a steam-plow, the combination, with a frame, of a crank-shaft, shovels mounted to revolve on the crank part of the shaft, disks mounted eccentrically to the crank, rods uniting the disks, between which rods the shovels pass, springs secured rigidly on the ends of the crank-shaft, and devices for raising and lowering the ends of the springs, substantially as herein shown and described.

2. In a steam-plow, the combination, with the frame *A*, of the crank-shaft *J K*, shovels mounted to revolve on the crank part, disks mounted to revolve eccentrically to the crank part, rods uniting the disks, between which rods the said shovels pass, sprocket-wheels connected with the disks, an engine, sprocket-wheels operated by the same, and driving-chains passed over the sprocket-wheels and propelling the machine by means of the shov-

els and disks, substantially as herein shown and described.

3. In a steam-plow, the combination, with the frame *A*, of the crank-shaft *J K*, the shovels *Q*, mounted to revolve on the crank part of the said shaft, disks for revolving the said shovels, means for revolving the disks, the springs *U* on the ends of the crank-shaft, chains connected with the ends of said springs, sprocket-wheels over which the said chains are passed, and devices for revolving said sprocket-wheels, substantially as herein shown and described.

4. In a steam-plow, the combination, with the frame *A*, of a crank-shaft, shovels mounted to revolve on the same, devices for revolving the shovels, springs on the ends of the crank-shaft, the curved frames *b* on the sides of the frame *A*, the shaft *a* on said frame, sprocket-wheels on the ends of the said shaft, chains passed over said sprocket-wheels and connected with the ends of the springs on the ends of the crank-shaft, a worm-wheel on the shaft *a*, the shaft *h*, and the worm *g* on the same, engaged with the worm-wheel, substantially as herein shown and described.

WILLIAM LAY.

Witnesses:

JOHN A. THOMPSON,
W. D. BERRY.