

O. Hyde,
Steam Flow.
No. 111,212. *Patented Jan. 24, 1871.*

Fig. 1.

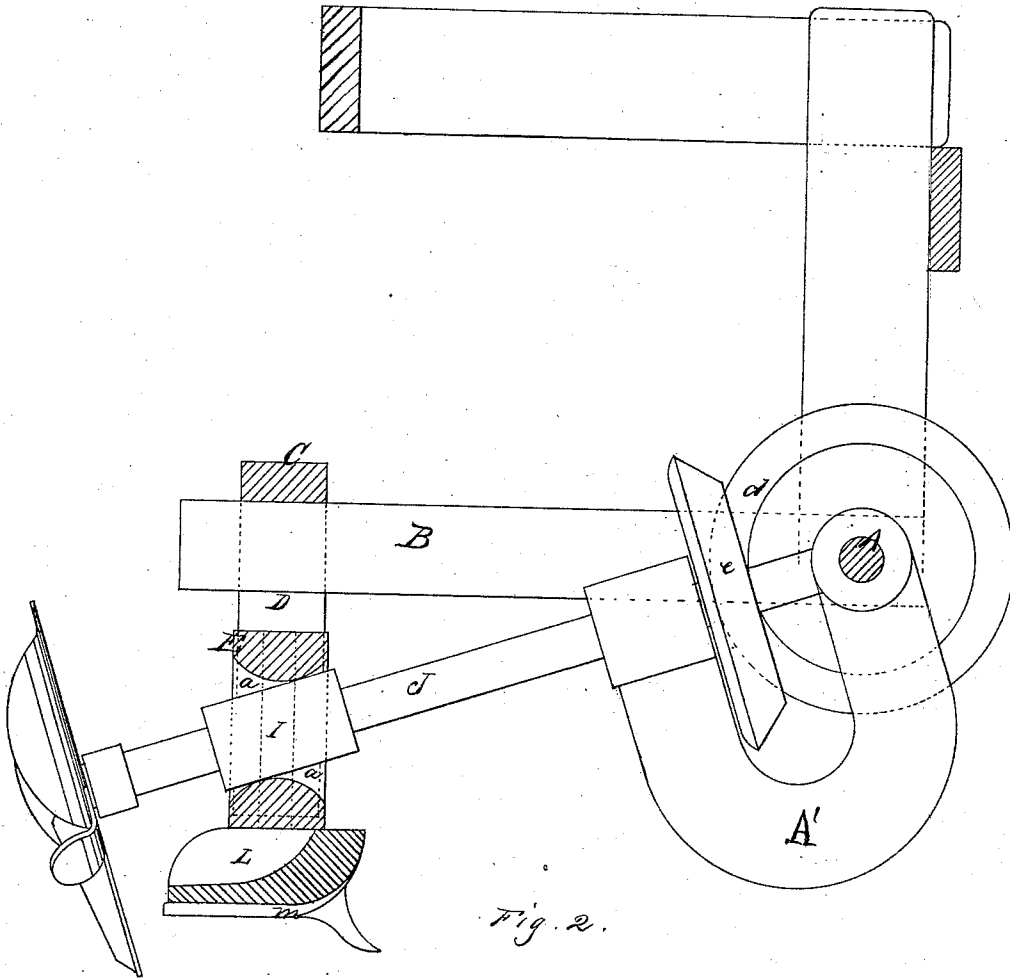
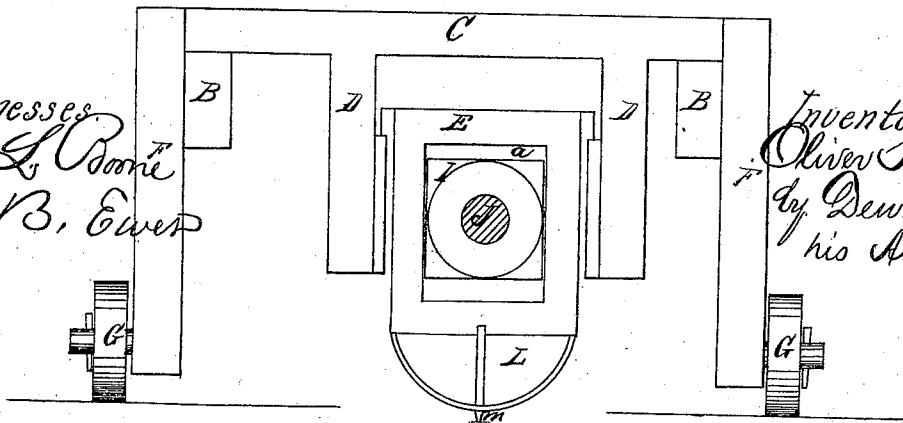


Fig. 2.



Witnesses:
Geo. L. Boone
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UNITED STATES PATENT OFFICE.

OLIVER HYDE, OF OAKLAND, CALIFORNIA.

IMPROVEMENT IN OPERATING CUTTERS FOR STEAM-PLOWS.

Specification forming part of Letters Patent No. **111,212**, dated January 24, 1871.

To all whom it may concern:

Be it known that I, OLIVER HYDE, of Oakland, county of Alameda, State of California, have invented certain Improvements in Mounting and Operating the Cutters of Steam-Plows; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My improvements in mounting and operating the cutters of steam-plows refer more particularly to that class of steam-plows in which a number of circular cutters is driven by the same power which propels the machine; and it consists of a frame of novel construction, in which are arranged as many sliding blocks as there are cutters to the machine. This frame is hinged to the rear end of the moving machine in such a manner as to permit a free movement of the frame, and its rear end is supported by standards, which are provided with either small wheels or elastic shoes.

The cutter-shafts pass through the sliding blocks, and permit the shafts with the cutters to be operated either above or below a horizontal plane independent of each other, and to accommodate themselves to the inequalities of the ground.

In order to explain my invention, so that others can understand its construction and operation, reference is had to the accompanying drawing, forming a part of this specification, in which—

A represents the main driving-shaft of any steam plow or cultivator. B B are the side beams of the plow and machine frame. Bearing upon the rear end of these frames is a transverse beam, C, from which depends at regular intervals a sufficient number of vertical hanging guides, D, to provide a space between each for a block or head, E, to be fitted and slide up and down between them. The number of spaces thus provided is equal to the number of cutters employed on the machine.

At each side of the frame is a supporting-leg, F, to the lower end of each of which is

secured a small wheel, G, which moves upon the ground and supports the cutter-frame; or an elastic runner properly shod with iron may be used.

The blocks E are arranged to slide up and down between the vertical guides D in the usual manner, and have through them a square hole, *a*, inside of which the box I is placed. The upper and lower sides of the square hole are rounded, so as to allow the box to change its level as the blocks E rise and fall in the slides.

The cutter-shafts J are driven by bevel-gears *d e* from the main driving-shaft, and pass through the box I, carrying the cutters K at their rear extremities.

Beneath the blocks E are fixed metal shoes L, of the form shown in the drawing—that is, with their forward ends and sides rounded or curved, and having a sharp cutting-keel, *m*, extending from the forward to the rear end along a central line. These sharp keels enter the ground sufficiently to guide the blocks E, and assist in preventing any side movement of the cutters which their rotary movement might tend to give.

The forward part of the frame C B is supported by the colter-runner A', which is attached at its forward end by the shaft A, and at its rear end by the cutter-shaft J, which passes through and revolves within the same. By this arrangement of the cutters each one is free to move up and down independent of the others, so as to accommodate the movements of each to the unevenness of the ground over which the plow is moved.

In some cases, as where the land to be plowed is very uneven and full of holes, it may be found desirable to do away entirely with the vertical guides D, as they would be liable to catch upon the ground when one of the supporting-legs F drops into a hollow place. In this case the sides of the blocks E can be provided with tongues and grooves, in the usual way, and slide against one another, thus doing away entirely with any separating-guides. Side braces would then have to be used to strengthen and brace the blocks and to keep them in place.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In combination with the blocks E, the metal shoes L, provided with the projecting knife-edged keel *m*, substantially as and for the purpose described.

2. The colter-runner A', hinged to the shaft A and cutter-shaft J, as and for the purpose set forth.

In witness that the above-described invention is claimed by me I have hereunto set my hand and seal.

OLIVER HYDE. [L. S.]

Witnesses:

JNO. L. BOONE,
GEO. H. STRONG.