(No Model.)

M. MACLEOD.

AGRICULTURAL IMPLEMENT.

No. 499,239. Patented June 13, 1893.

Fig. 1.

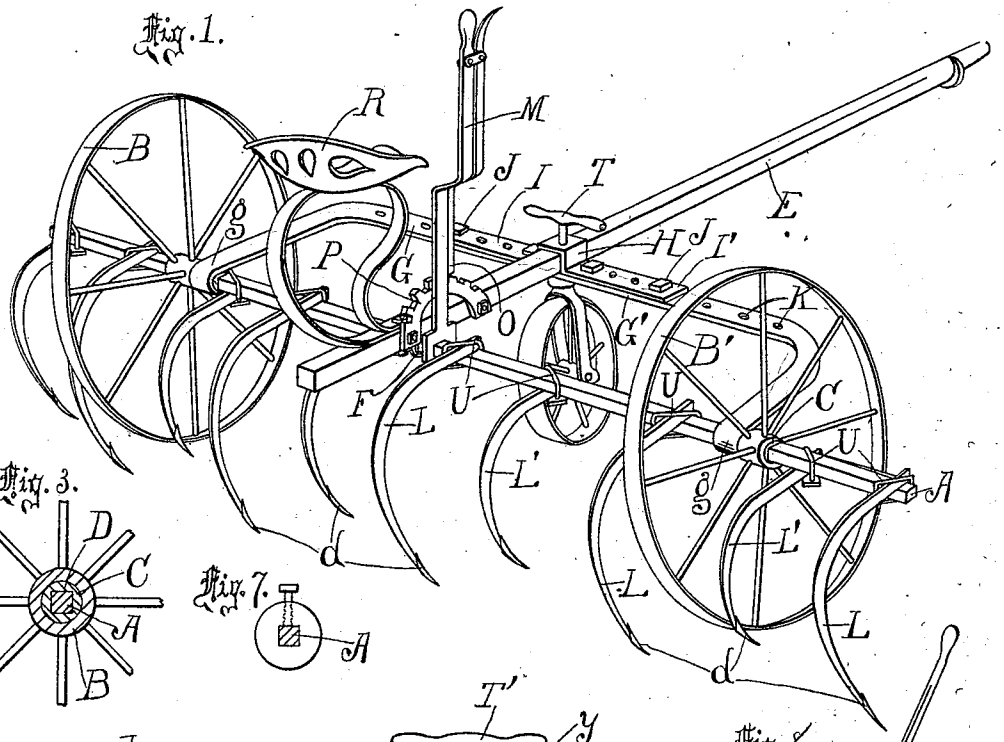


Fig. 3.

Fig. 7.

Fig. 4.

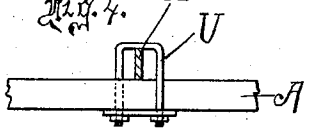


Fig. 9.

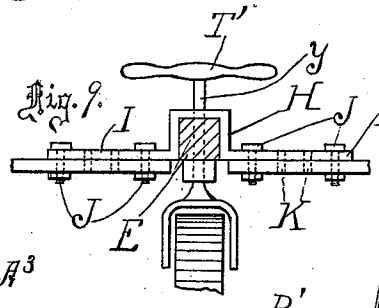


Fig. 8.

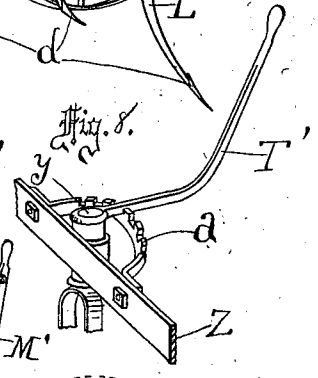


Fig. 5.

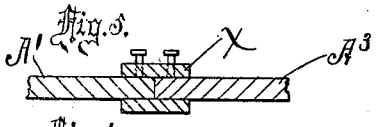


Fig. 6.

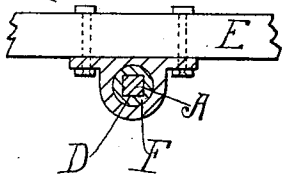
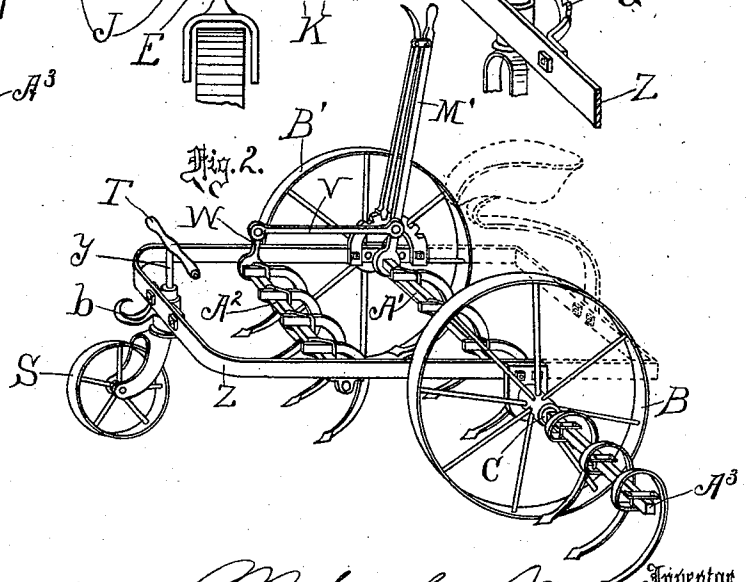


Fig. 2.



Witnesses.

M. M. Lee.

Alfred D. Townsend.

Inventor.

Malcolm Macleod

by Hazard & Townsend

his attys.

UNITED STATES PATENT OFFICE.

MALCOLM MACLEOD, OF LOS ANGELES, CALIFORNIA.

AGRICULTURAL IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 499,239, dated June 13, 1893.

Application filed March 28, 1891. Serial No. 386,882. (No model.)

To all whom it may concern:

Be it known that I, MALCOLM MACLEOD, a citizen of Great Britain, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Agricultural Implements, of which the following is a specification.

The object of my invention is to provide a simple and economical machine for the cultivation of the soil, which is adapted for use in ordinary cultivation, and also in the cultivation of orchards.

In the cultivation of orchards it is necessary to provide means for introducing the cultivators below the lower limbs of trees, and my invention is specially adapted for this work.

My invention comprises certain special features of construction and combination of parts hereinafter set forth and claimed.

The accompanying drawings illustrate my invention.

Figure 1 is a perspective rear view of my improved machine. Fig. 2 is a perspective front view of a different form of machine embodying my invention. Fig. 3 is a cross section of the wheel, its journal sleeve and the axle. Fig. 4 is a view of a fragment of the axle, showing a section of the cutter secured thereto. Fig. 5 is a cross section of the junction of the extension with the axle proper. Fig. 6 illustrates the device for attaching the tongue to the axle. Fig. 7 shows one of the collars attached to the axle to prevent the parts from being displaced. Fig. 8 is a fragmentary view illustrating the hand steering apparatus. Fig. 9 is a fragmentary view of the foot steering apparatus, shown in Fig. 1, with fragments of the tongue braces, G G', attached.

In Fig. 1 the machine is shown as it ordinarily appears without any extension attachments.

A is the axle, consisting of a bar, angular in cross section, and of uniform cross section throughout its entire length.

B B' are supporting wheels, which are respectively journaled upon the axle through the medium of cylindrical sleeves, C which are respectively provided with journal axial perforations, D, conforming to the cross section of the axle A. The tongue E is journaled upon sleeve F, similar in construction to the sleeves C.

I provide extensible tongue braces, G G', journaled respectively at one end, *g* to the axle by sleeves corresponding to sleeves C and F.

The tongue clamp H is provided with two side arms, I I', to which the inner ends of the braces, G G' are respectively secured by suitable means, such as bolts J. Holes K, admit of the adjustment of the braces to increase or decrease the space between their small ends, *g*.

L L' are the cutter arms, which are provided with cutters, *d*, and are preferably rigidly secured alternately to the axle A. The shorter arms L' are rigidly secured to the under side of the axle, and the larger arms L are rigidly secured to the top of the axle, so that when the axle is oscillated to insert the teeth into the ground the cutters will be inserted to equal depth, as will be hereinafter more particularly described.

M is an operating hand lever, fixed upon the axle.

O is the pawl, secured to the hand lever, and P is the rack, secured to the tongue E, whereby the hand lever is maintained in any position desired.

In practice the operator sits upon the seat, R, which is fixed upon the tongue, and operates the lever M, to turn the axle to insert or withdraw the teeth, the action of the lever being directly communicated to the cutters through the axle.

S is the steering wheel, arranged at the front of the machine to support the tongue, or, when the machine is made in the form shown in Fig. 2, to support the front of the frame. It is provided with suitable means, T, for its operation, either by the foot, as shown in Figs. 1 and 2, or by the hand as shown in Fig. 8.

T' represents the means for steering by hand.

In the drawings the steering wheels are shown in position reverse to that which they naturally assume when the machine is being drawn forward. This is done for clearness of illustration.

The cutter arms, L L', are secured to the axle by clamps U and may be arranged at

such intervals apart as may be desired, and the wheels B may be placed at such points upon the axles as may be desirable for different kinds of work.

When it is desired to cultivate in orchards where the low limbs are liable to interfere with the work, the wheels are arranged at a distance from the ends of the bar, or axle, A, and one or more additional cutter arms provided with cutters are clamped to the portions of the axle projecting out beyond the wheels, the extensible tongue braces G G′ being adjusted to a greater or less width to correspond with the space between the wheels.

Fig. 2 shows my improvement applied to a machine having two cutter carrying shafts, A′, A^2, one of which, A′ serves as the axle.

V is a connecting rod, connecting the hand operating lever, M′ with the arm W which is fixed upon the auxiliary cutter shaft, A^2, so that when the lever, M′ is operated the shafts A′ and A^2 will be simultaneously operated.

A^3 represents an extension arm which may be secured to one end of the main shaft or axle A or A′ by a suitable clamp sleeve X, to increase the length of the axle.

The steering apparatus consists of the wheel S secured to a stem Y which is journaled to the frame Z, or to the tongue E, (in Fig. 1) as the case may be. The stem may be operated by the bar T or by the handle T′.

a is a rack arranged to hold the handle in the position desired.

The hook *b*, as in Fig. 2, may be substituted for the tongue E as suitable means for attachment for drawing the machine forward.

It will be observed that the tongue and braces, shown in Fig. 1, practically form a frame corresponding to the frame Z, shown in Fig. 2.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the axle, angular in cross-section, the journal sleeves respectively provided with the axial perforations conforming to the cross-section of the axle, the supporting wheels journaled upon such sleeves, the tongue and braces journaled upon corresponding sleeves, the cutter arms provided with cutters and fixed to the axle, and the operating lever fixed to the axle.

2. The combination of the axle angular in cross section, the journal sleeves for the wheels and frame respectively, provided with the axial perforations, conforming to the cross section of the axle, the tongue clamp and the curved braces forming with the tongue and axle the main frame and the steering wheel upon the front end of the frame substantially as shown and described.

3. The square axle, the wheels adjustable thereon, the tooth arms or bars made rigid upon the axle and capable of being extended outside the wheels, the lever rigid upon the axle, the tongue, the tongue clamp, the curved braces adjustable on the tongue clamp and the front steering wheel substantially as shown and described.

MALCOLM MACLEOD.

Witnesses:
JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.