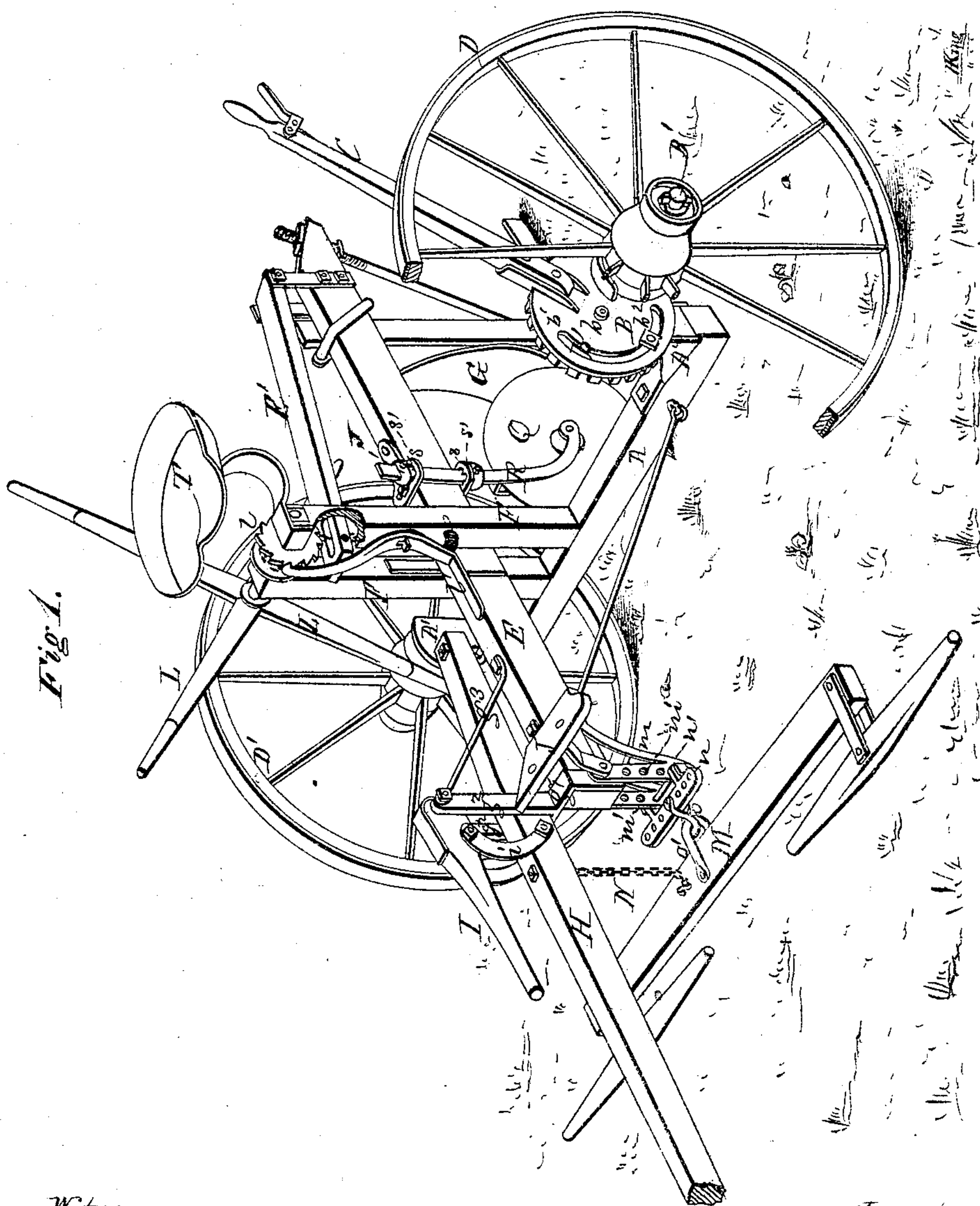


2 Sheets--Sheet 1.

H. M. SKINNER.  
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No. 140,551.

Patented July 1, 1873.



Witnesses.

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Associate

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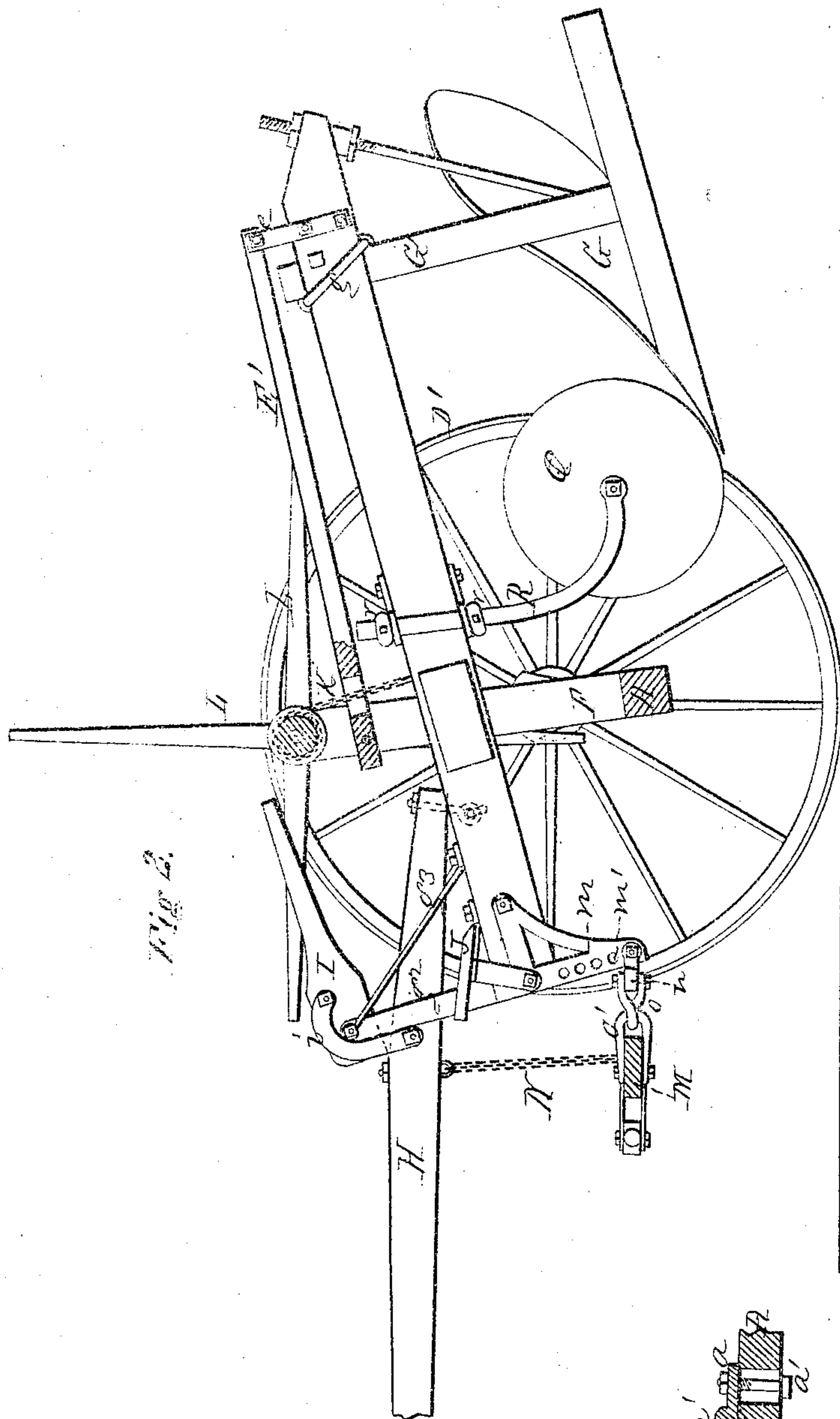


Fig. 2.

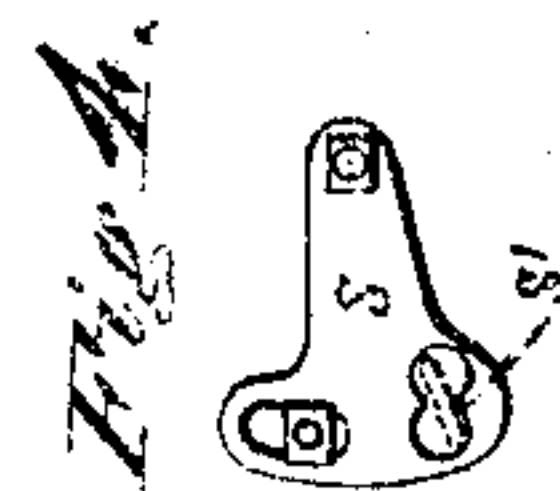


Fig. 4.

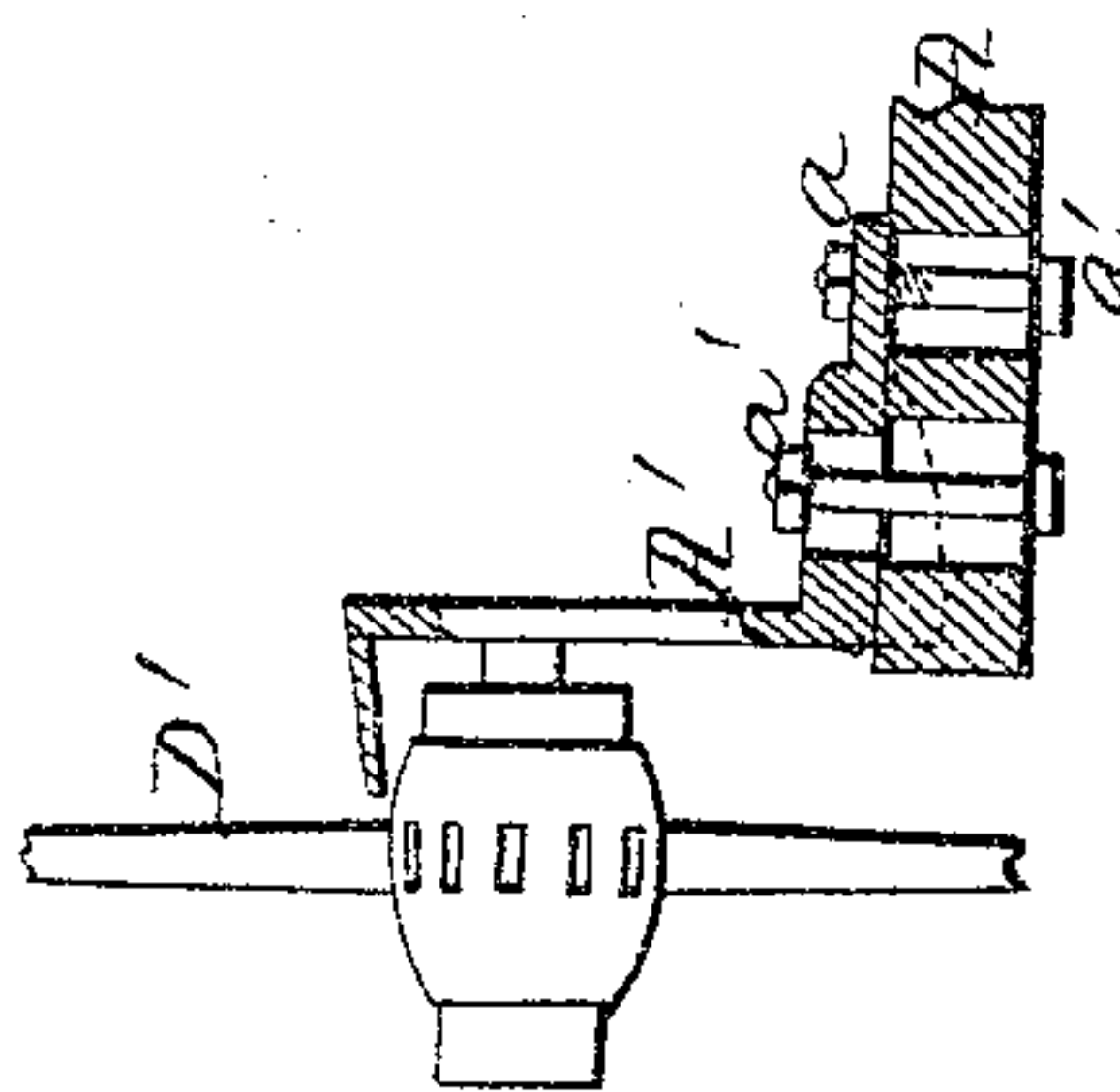


Fig. 3.

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# UNITED STATES PATENT OFFICE.

HENRY M. SKINNER, OF ROCKFORD, ILLINOIS, ASSIGNOR TO CHESTER C. BRIGGS AND ABRAHAM I. ENOCH.

## IMPROVEMENT IN WHEEL-PLOWS.

Specification forming part of Letters Patent No. **140,551**, dated July 1, 1873; application filed March 29, 1873.

*To all whom it may concern:*

Be it known that I, HENRY M. SKINNER, of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Sulky or Riding Plows; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a perspective view of a sulky or wheel plow embracing my improvements, showing the parts in working position. Fig. 2 is a side elevation of the same, partly in section, showing the plow raised for transportation or for passing an obstruction. Fig. 3 represents a portion of the axle-bar and the angular stub axle-iron in section, showing the manner of adjusting the furrow-wheel and the length of the axle; and Fig. 4 shows one of the sector-plates for supporting and adjusting the colter-standard.

Similar letters refer to corresponding parts in all the figures.

My invention relates, first, to the arrangement of the locking-lever in connection with the plow-beam and hinged tongue, whereby, when it is desired to turn a corner, the plow-beam may be tilted, turning on the raising-chain as a fulcrum, by the action of the locking-lever, in such manner as to raise the plow sufficiently out of the ground for the purpose of turning without the use of the windlass or other lifting device. Second, to the manner of adjusting the length of the axle for varying the position of the wheel on the plowed-ground side to adapt it to the different sizes of plow used, and for causing the wheel to run in the preceding furrow. Third, to the manner of supporting and adjusting the colter-wheel, all as hereinafter described.

In the drawing, A represents the axle-bar;  $A^1 A^2$ , the angular or crank-shaped stub axles or axle plates applied one at each end, the one,  $A^1$ , being provided with longitudinal slots on its lower horizontal arm  $a$ , through which, by means of bolts  $a'$ , it is adjustably secured to the end of axle-bar A, and which may be also slotted, as shown, if desired, for permitting an increased movement of the an-

gular stub-axle. The angle-iron or plate  $A^2$  is provided with a vertical disk or sector-plate having a central pivot,  $b$ , upon which is mounted a second disk, B, having the axle  $B'$  formed thereon eccentrically to the pivot  $b$ . The plate B has in it a slot,  $b^1$ , formed in the arc of a circle, of which the pivot-bolt  $b$  is the center, and a bolt at  $b^2$  attached to the inner disk and passing through slot  $b^1$  serves to steady and guide the adjustment of plate B on pivot  $b$ . The adjustment of plate B and its axle  $B'$  is effected by means of a lever, C, and any convenient form of locking-latch for adjusting the height of said axle and its wheel for adapting it to the higher or land side in a manner that will be readily understood. D D' are the wheels. E is the plow-beam, arranged over the axle-bar between two standards, F F, attached to said axle; and G is the plow, secured to said beam through the medium of standard and brace  $G' g$ , in any usual or convenient way. The plow-beam at or near its rear end has bolted to it vertical straps  $e$ , to the upper ends of which is pivoted the rear end of a link or connecting-bar,  $E'$ , the forward end of said bar being pivoted to and between the standards F near their upper ends. H is the tongue, connected at its rear end by means of an eye-joint with the plow-beam at one side thereof, at a point in rear of the forward end of said beam and in advance of the axle-bar, as shown. The forward end of the plow-beam has secured to it an angle-iron or strap,  $g^1$ , provided with two upright arms or guide-standards,  $g^2 g^2$ , between which the tongue passes, said standards permitting vertical movement of the tongue upon its pivotal connection with the beam, but preventing all lateral movement of the tongue or plow-beam relatively to each other. The upper ends of straps  $g^1$  are connected with the beam E by a brace,  $g^3$ . I is a lever pivoted between the straps  $g^1$  at their upper ends, and connected with the tongue H in advance of the guide-straps  $g^1$  by a curved link or links  $i$ . The arrangement of this lever and its fulcrum and link is such that when the lever is moved from the forward position shown in Fig. 1 to one in rear of its fulcrum, as shown in Fig. 2, the



curved links are thrown over the lever pivot or upper ends of the straps  $g^1$ , and the heel-end of the lever is brought to bear against the tongue, as shown, thereby firmly locking the joint between the pivoted tongue and plow-beam with the plow-beam thrown into the inclined or tilted position shown in Fig. 2. The plow-beam, when thus tilted or raised, is supported by a chain, K, the upper end of which is connected with a windlass, L L, through which the depth of furrow may be regulated, or the plow raised for transportation, as desired. The windlass L and supporting-chain K are held at any required point of adjustment by means of a ratchet-wheel,  $l$ , and spring-treadle pawl  $l'$ , of any usual or desired construction and arrangement.

When the plow is set for any usual depth by means of the chain and windlass, ordinarily in turning corners, it will be found unnecessary to disturb such adjustment, the action of the locking-lever I tilting the plow-beam, as explained, serving, when the team is stopped for turning a corner, to back the plow out and to raise it sufficiently for that purpose, and, when the locking-lever is released, permitting the plow to return to the same depth of furrow without requiring attention or care from the operator.

J is a foot-board bolted to the forward end of the plow-beam, and upon which, when the driver grasps lever I for raising the plow or tilting the plow-beam, as explained, the weight of the driver is thrown, and thereby made to assist in tilting the plow-beam on its fulcrum-chain K, as will be readily understood. To the forward end of the plow-beam underneath foot-board J two triangular plates,  $m$   $m$ , are attached, said plates being provided on their forward vertical sides with a series of perforations,  $m'$ , for permitting the vertical adjustment of the line or point of draft.  $n$  is a horizontal clevis-plate, provided with rear perforated lugs or ears  $n'$ , through which it is connected with plates  $m$  by a through bolt. The plate  $n$  is provided with a number of perforations, which permit the horizontal adjustment of the clevis  $o$  and consequent lateral adjustment of the point of draft. M is the evener connected, by a loop or link,  $o'$ , with the clevis  $o$ , and, by a chain, N, with the pole or tongue H. By this arrangement, when the forward end of the beam E is depressed for tilting or raising the plow, the evener is upheld by the tongue, thereby preventing the traces from becoming entangled with the horses' feet when the team is stopped and backed for turning a corner, and by means of a hook attached to the tongue the chain may be readily adjusted for setting the evener higher or lower to adapt it to the team. Q is the colter, pivoted in bearings in a standard, R, the upper end of which is secured to the plow-beam in advance of the plow by means of two slotted or perforated sector-plates,  $s$   $s$ , one arranged upon the other underneath the plow-

beam. These plates are pivoted at their rear ends to said plow-beam, and are provided near the forward expanded ends with slots curved in the arc of a circle, of which the pivot is the center, for permitting their lateral adjustment, a set-screw passing through the slots serving to hold them at any desired point. The colter-standard is made in strap form, its greater width being from front to rear, and the elongated perforations in plates  $s$ , through which said standard passes, are provided near midway of their length with knife-edge bearing-points  $s'$ , upon which the standard R is allowed to vibrate sufficiently to accommodate itself to the position of plates  $s$ , or to variations from a right line in the path of the machine. The height of the colter is regulated by sliding collars  $t$  held in place on the standard R by set-screws. T is the driver's seat secured to the standards F or other convenient support, as may be preferred.

The object of the hinging of the tongue, as shown, is twofold: First, when the plow is at work it is desirable to have a flexible tongue, which is used to prevent any lateral displacement of the plow, it being observed that the team is hitched to the plow direct; and, second, in process of locking, thereby making the tongue rigid, the forward end of the tongue being secured to the neck-yoke so that the position cannot be changed, the forward end of the beam is lowered—that is, the relative position is changed—the tongue and beam are separated, except at the point of connection formed by the eye-bolts at the extreme back end of the tongue. The beam being held in the vertical position by the chain attached to windlass, the front end of the tongue being held by neck-yoke, and the back end hinged by eye-bolts in the rear of the front end of plow-beam, the plow-beam rocks, as it were, over the axle, the plow rises by the backward motion, clearing itself from the soil sufficiently to allow of the turning of corners without the use of the windlass. This feature is regarded as important, as the plow can be quickly raised and dropped in position again without the use of the windlass with no variation of depth, whereas, if the tongue were merely made rigid without changing the position of the plow, the windlass must be used at the corners, and care must be taken in lowering after the corner is made lest the depth should be varied.

This device is applicable to gang as well as sulky plows, where the general construction is the same. The foot-board is placed on the front end of the beam at one side of the tongue, as shown, so that as the operator reaches forward to grasp the lever, which is with its free end forward when at work, the weight of the person is changed from the seat to the foot-board, which renders the operation of raising the plow of easy performance.

It will be seen that when the corner of the unplowed ground is reached, the team being halted, and the locking-lever brought into requisition, the traces will naturally be slack-



ened, consequently the evener with the whiffletrees drops and becomes entangled with the horses' heels, and it is to obviate this difficulty that the connecting-chain is placed between the evener and tongue, so that when the plow-beam is depressed the evener is held in place and raised rather than otherwise, which is an important item, especially with high-spirited horses.

In the practical working of the sulky as well as gang plows different-sized plows are used, twelve, fourteen, and sixteen inches, &c., and where the wheel runs in the previously-made furrow a difficulty arises, the wheel necessarily running near the land edge of the furrow, where the axle is adapted to a twelve-inch plow, and it being desired to make a wider cut by replacing the twelve-inch with a sixteen-inch, the wheel will not allow of the change without the additional lengthening of the axle. This difficulty is obviated by the adjustable stub-axle described.

Having now described my invention, what

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

1. The self-tilting plow-beam and hinged tongue, in combination with the tilting locking-lever I, operating substantially as described.

2. The combination of evener M with the forward end of the tilting plow-beam, and with the pivoted tongue, by means of the chain N, as and for the purpose described.

3. The angular stub axle-plate A<sup>1</sup>, made adjustable on the axle-bar, as and for the purpose set forth.

4. The adjustable colter-standard R, in combination with the adjustable supporting-plates s provided with slots with knife-edge pivot-bearings s' formed on them, as described.

This specification signed and witnessed this 13th day of March, 1873.

HENRY M. SKINNER.

Witnesses:

J. A. PARMELE,  
J. W. FORD.