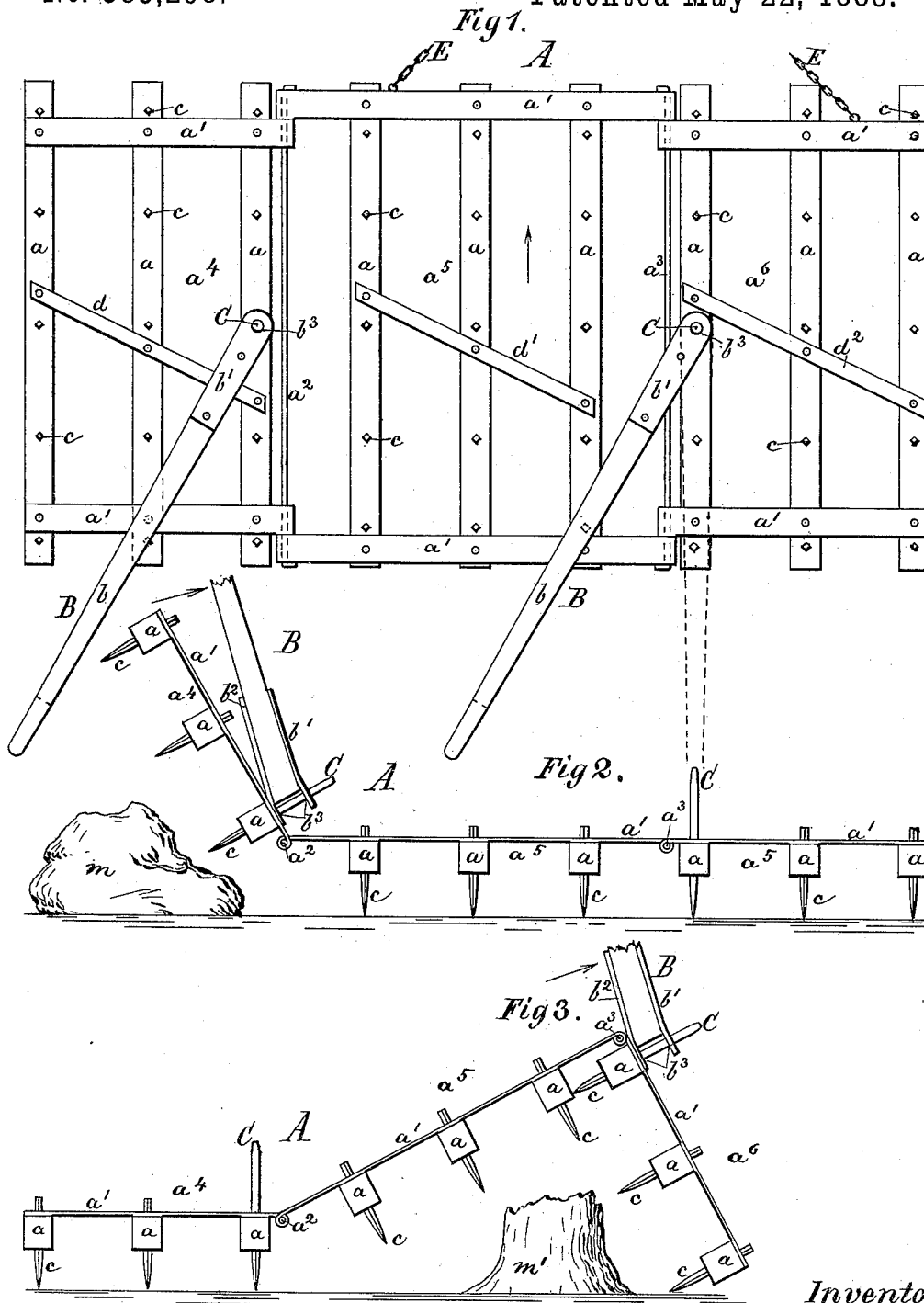


W. E. JACOBS.

HARROW.

No. 383,298.

Patented May 22, 1888.



Witnesses:
Ralph L. Fenwick
Daniel Gertt

Inventor:
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Fig 4.

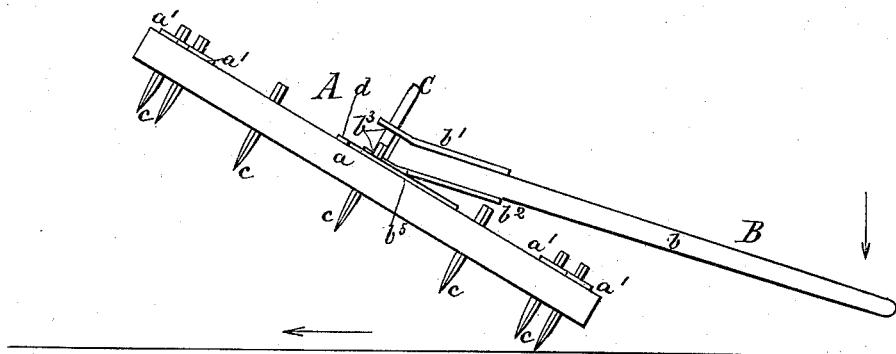


Fig 5.

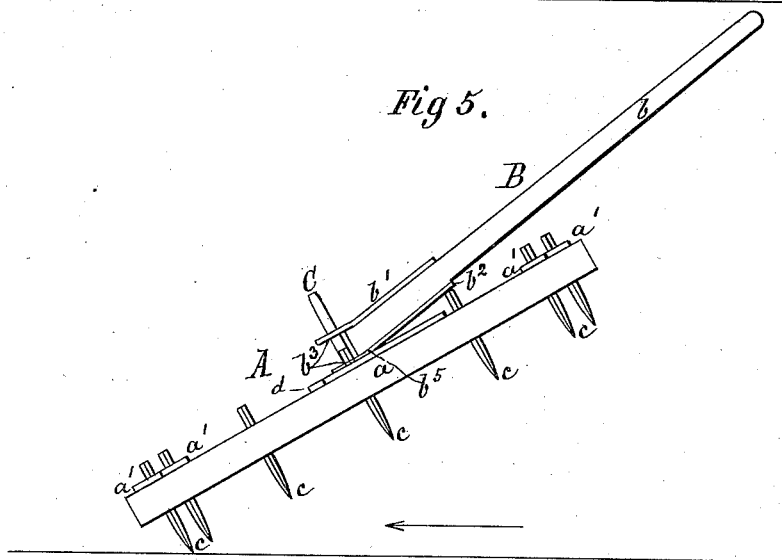


Fig 6.

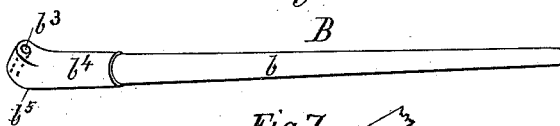
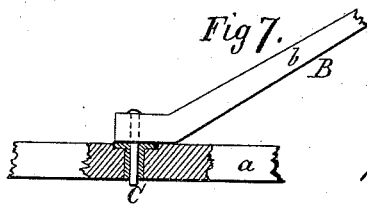


Fig 7.



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UNITED STATES PATENT OFFICE.

WILLIAM E. JACOBS, OF COLUMBUS, OHIO.

HARROW.

SPECIFICATION forming part of Letters Patent No. 383,298, dated May 22, 1888.

Application filed May 6, 1887. Serial No. 237,369. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. JACOBS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Harrows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a new means whereby a jointed harrow in whole can be tilted in a longitudinal direction, or one or more of its sections tilted in a lateral direction, in order to avoid trees, stumps, rocks, corn-shocks, and the like while harrowing a field.

The chief object of my invention is to enable the farmer to lift and tilt the harrow or its sections in all suitable directions while walking behind and guiding it over the field by using simply one lever or two levers for doing the work. Another object is to make the lever or levers by which the operation is effected removable, for convenience of packing for transportation.

In the accompanying drawings, Figure 1 represents a top view of a jointed harrow of well-known construction having my lifting and tilting means applied thereto. Fig. 2 is a rear view of the same, representing one of the harrow-sections swung up by means of my invention so as to clear an obstruction. Fig. 3 is a rear view of the same, representing the middle section of the harrow and its right-hand side section turned up to clear a stump. Fig. 4 is a side view showing the front edge of the whole harrow turned up. Fig. 5 is a side view showing the rear edge of the whole harrow turned up. Fig. 6 is a perspective view of a modified construction of my improved lifting-lever, and Fig. 7 a modification showing pin on the lever and socket to receive it on a harrow-bar.

In the drawings, the letter A represents a harrow, B my lifting and tilting lever, and C vertical pins used in connection therewith.

The jointed harrow A may be of any ordinary construction. In this instance each of its sections is shown as consisting of a number of bars, a a a^{10} , fastened to transverse metal bars a' and diagonal stay-bars, as d d' d^2 . The several sections are jointed together, as at a^2 a^3 ,

thus forming a flexible harrow comprising three connected sections, a^4 a^5 a^6 . The bars a and a^{10} are provided with ordinary harrow-teeth, c , and in the innermost bars of the sections a^4 a^6 , next to the middle section, a^5 , and about midway of their length, the lifting-pins C are inserted, these pins being quite stout and firmly fixed in position. The sections a^5 a^6 have a draft-chain, E, attached to them, as shown, or otherwise.

The lever B consists of a handle-bar, b , and two angular plate-iron bars, b' b^2 , fastened to its lower end and provided with inclined holes b^3 , whereby it can be slipped over the respective pins C, and when on either of the pins will have a fulcrum-bearing on a bar, a , of the harrow-sections a^4 a^6 , while the portion b stands inclined above said sections, as illustrated.

While the harrow is at work the lever or levers B are attached, as illustrated, to the pins C, and the operator holds the driving-reins of the team with one hand and one or the other of the levers B with the other hand. When a tree, stump, rock, or corn-shock is discovered in the path of the section a^4 of the harrow, the lever B of said section is made to occupy the position shown by full black lines in Fig. 1 and lifted, and the portion a^4 thereby turned up, as shown in Fig. 2, in which position it will pass by the obstruction m , as illustrated.

If the obstruction is found to be in the direction of the middle section, a^5 , of the harrow, the lever B is made to occupy the oblique position shown in Fig. 1 and lifted, whereby the center section, a^5 , and side section, a^6 , assume the shape of an inverted V, and thus pass over the obstruction m' , as illustrated in Fig. 3.

If it is desirable to lift the front edge of the whole harrow over an obstruction, the lever B is turned on the pin C and held in line with the bars a and depressed, as represented in Fig. 4, and if the rear portion of the harrow is to be lifted the lever is held in line with the bars, as before, and lifted, thereby raising the rear edge of the whole harrow, as is shown in Fig. 5.

The operations illustrated by Figs. 2 and 3 (when only one lever B is provided) can be performed on the opposite side of the central section of the harrow by changing the lever from pin C of section a^6 to a similar pin, C, on

section a^4 and placing the lever in proper positions with respect to the harrow.

The plate-bars $b' b^2$ of the handle-bar b are made with a bend, b^5 , in order that the lever
5 B may stand elevated in rear of said bend when a portion of the bar b^2 is resting flat upon a bar of the harrow-section, as illustrated. By this construction the lever B is afforded a better fulcrum-bearing upon the harrow-bar a for
10 manipulation of the harrow-sections, and longer range of movement for said lever is permitted when it is depressed.

While with this invention all necessary positions of the harrow can be effected in a very
15 short time and with but very slight exertion of the operator, the contrivance is very simple and comparatively inexpensive.

The modification shown in Fig. 6 consists in the adoption of a socket, b^4 , with an inclined
20 pin-hole, b^3 , at the end, which, it will be seen, answers the purpose of the angular bars $b' b^2$ perfectly.

I do not wish to be limited as to the exact location of the pins C on the harrow.

What I claim as my invention, and desire to 25 secure by Letters Patent, is—

1. In combination with a lifting and tilting hand-lever, B, a three-section harrow comprising a middle section, a^5 , jointed on either
side to side sections, a^4 and a^6 , and with the inner beams, a^{10} , of the respective side sections 30 and nearest to the central section provided with vertical pins C to engage at the will of the operator with the lifting and tilting hand-lever, substantially as and for the purpose de- 35 scribed.

2. The lifting and tilting lever B, provided with an angular bend, b^5 , and an inclined passage, b^3 , in combination with the vertical pin C of the side sections, a^4 and a^6 , of the three- 40 section harrow $a^4 a^5 a^6$, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. JACOBS.

Witnesses:

J. D. SULLIVAN,
J. C. RICHARDS.