

(No Model.)

F. B. HARVEY.
HARROW AND ROLLER.

No. 500,064.

Patented June 20, 1893.

Fig. 2.

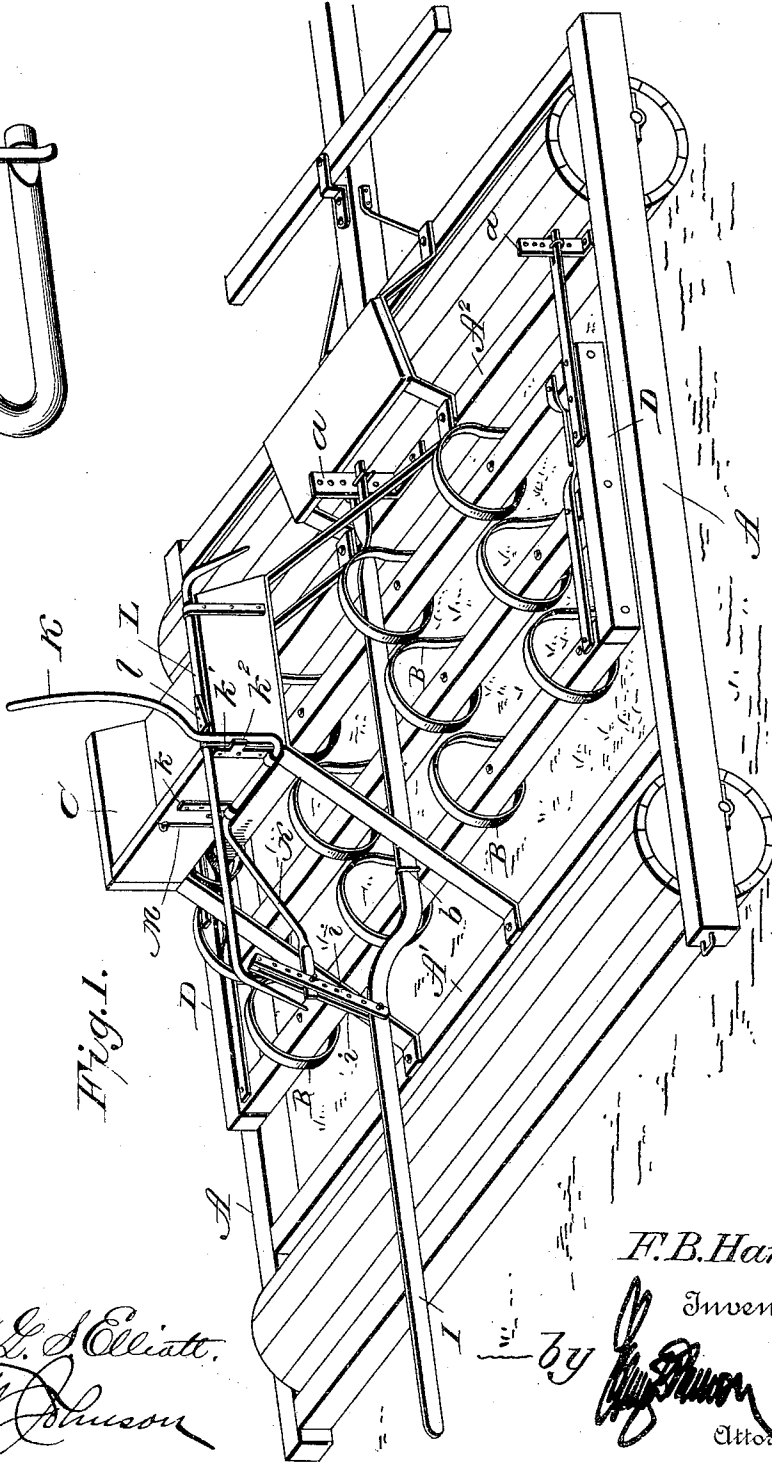
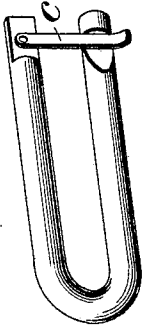


Fig. 1.

Witnesses
L. S. Elliott.
E. W. Johnson

F. B. Harvey.

Inventor

by *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

FRANCIS B. HARVEY, OF ATGLEN, PENNSYLVANIA.

HARROW AND ROLLER.

SPECIFICATION forming part of Letters Patent No. 500,064, dated June 20, 1893.

Application filed February 16, 1893. Serial No. 462,580. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. HARVEY, a citizen of the United States of America, residing at Atglen, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Harrows and Rollers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in combined harrows and rollers, and is designed more especially as an improvement upon my patent dated April 26, 1892, No 473,746.

In the accompanying drawings, Figure 1 is a perspective view of a harrow and roller constructed in accordance with my invention, and Fig. 2 is a detail view.

The object of the present invention is to provide means whereby the harrow section can be raised and lowered by the driver while occupying the seat or while walking behind the machine.

A designates the main frame of the machine, which is provided with rollers and is constructed substantially as shown in the patent referred to. The cross-bar A^2 of the frame is provided with uprights a and a' , which are preferably made from a single flat bar of iron the upper ends being perforated while the lower ends are bent at right angles and secured to the cross-bar A^2 by means of bolts or other suitable fastening devices.

The seat, C, is supported by bars which extend under the same and are bent down to bear upon the cross-bars A' and A^2 of the main frame, and these supporting bars may be suitably braced to support the seat rigidly upon the main frame.

The harrow section, D, is provided with spring teeth B, or spring bars to which teeth may be attached which are placed in reverse position to that usually occupied by spring teeth, as shown in the drawings, whereby several advantages are gained, such as greater durability in retaining their set, a shorter bar and less motion in clearing the teeth attached

thereto from rubbish. To these spring bars B are attached teeth of any approved construction, preferably such as are shown in my application filed October 14, 1892, and pending concurrently herewith. To the rear cross-bar of the harrow section is connected a lever I, by means of a staple b , said lever being curved upward rear of the harrow section so as to clear the rear roller, and this lever, adjacent to the standard or upright a' , is given a turn or twist, and the lower end is slotted for engagement with the standard, to which it is secured by a U-bolt, as shown in Fig. 2, said bolt being preferably made of a single rod of metal and provided adjacent to its terminals with a flat spring c . The spring c can be turned to lie on a line with one of the members of the bolt, and when in such position the members of the bolt are passed through two of the perforations in the standard. The end of the lever lying between the members of the bolt will then be held in position against movement. A similar bolt is used to connect the harrow section with the standards or uprights a .

The lever I is provided with parallel perforated bars or plates $i i$ which are connected to each other at their upper ends and at their lower ends are pivoted to the lever I by a suitable connecting bolt, and with these bars or plates the projecting end of a hand-lever K engages, said hand-lever being bent as shown and secured to the rear portion of the seat C by hangers or straps k and k' , the hanger or strap k' being provided with a laterally projecting portion k^2 which projects beyond the side of the seat and engages with the lever K to prevent excessive rearward movement thereof.

L designates a catch-bar which is attached to one side of the seat C and is held in place by suitable straps having bent ends. This bar carries a triangular plate l which is adapted to engage with the lever K so as to hold said lever rigid, and thus prevent a rearward movement of the harrow. The ends of the bar L are bent as shown, so that the catch-plate will be retained normally in a horizontal position by gravity. The front end of the bar L lies adjacent to the front of the seat while the rear end is extended to be readily

grasped by the driver when walking, for the purpose of turning it sufficiently to allow the vertical lever K to pass the catch-plate, when the harrow can be raised by the lever I.

5 It will be noted that by the construction herein shown the harrow section can be raised by the driver operating the vertical lever L when riding or the horizontal lever I when walking. The front end of the bar L can be
 10 operated by the driver's hand to throw the plate or catch *l* out of engagement with the lever K, or it may be turned in its bearing by his knee. By means of these levers and the
 15 U-bolts in the perforated standards *a a'* I provide for the rigid holding of the teeth in the harrow frame at the desired depth; but when it is desired to let the harrow run freely in the ground I place the U-bolts in the two perforations in the top of the standards *a a'* and
 20 allow the bar connecting the harrow frame with said standards to play between the bolts and the harrow bar *A²*, at the same time withdrawing the bolt that connects the plates *i i* and the lever I and place the bolt through the
 25 plates and under the lever, leaving the lever free between the plates and the bolt below and the end of the vertical lever K above. Thus I give the rear of the harrow the same play between the plates that it has in front
 30 under the U bolts, allowing it to run freely. When it is desired to hold the harrow section clear of the ground a hook M carried by the rear portion of the driver's seat can be caused to engage with the rear portion of the
 35 hand-lever K and thus hold the section raised. The depth which the harrow teeth will enter the ground may be regulated by adjusting the connecting bars to the standards *a* and *a'*, and by correspondingly changing the position
 40 of lever I in the plates *i i*, so as to bring the rear end of the harrow on the same level as the front end.

I am aware that prior to my invention it has been proposed to provide a clod-crusher
 45 with a harrow section which is hinged between the rollers and is provided with a lever which is connected to the rear portion of the harrow frame and extends forwardly so that the harrow can be raised to free the same

from débris, and such construction I do not claim broadly; but

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

1. In a harrow and roller, a seat suitably supported upon the main frame and provided
 55 with a catch-bar which is adapted to engage with a hand-lever also supported by the seat, said lever being connected to a rearwardly extending bar I, which is attached to the harrow section and to the main frame, substantially
 60 as shown, and for the purpose set forth.

2. In combination with a harrow and roller frame constructed substantially as shown and having uprights with perforations, bars connecting a harrow section thereto, of U-bolts
 65 adapted to be passed through perforations in the standards or uprights and lie over the ends of the connecting bars, substantially as shown, and for the purpose set forth.

3. In combination with a harrow and roller
 70 frame constructed substantially as shown, a lever pivoted centrally thereon, said lever being provided at its forward end with members which embrace a perforated standard, said lever being attached to the rear portion of
 75 the harrow section and extending rearwardly beyond the rear roller, means for connecting the same with a hand-lever pivoted to the supporting seat, and a gravity catch bar also having a rearwardly extended portion, substantially
 80 as shown, and for the purpose set forth.

4. In a harrow and roller, the combination, of a lever pivoted to the frame and connected to the harrow section, perforated plates
 85 *i i* pivoted to the lever and connected to the rear end of a hand-lever K which is attached to the seat by hangers *k* and *k'*, one of said hangers having a laterally projecting portion with which the lever engages, of a gravity catch-bar also supported by the seat, said
 90 catch-bar having bent ends, substantially as shown and for the purpose set forth.

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

FRANCIS B. HARVEY.

Witnesses:

ANNIE C. MCGOWAN,
 ANNIE P. CARUTHERS.