(No Model.)

G. W. GORSUCH.

HARROW.

No. 381,835. Patented Apr. 24, 1888.

Fig. 1.

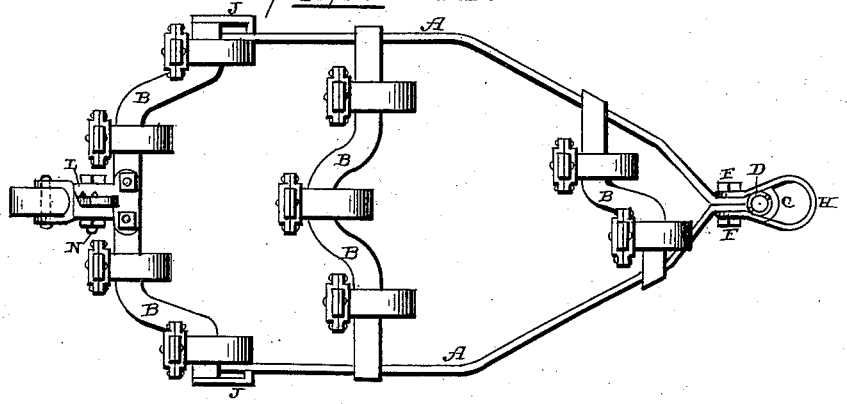


Fig. 2.

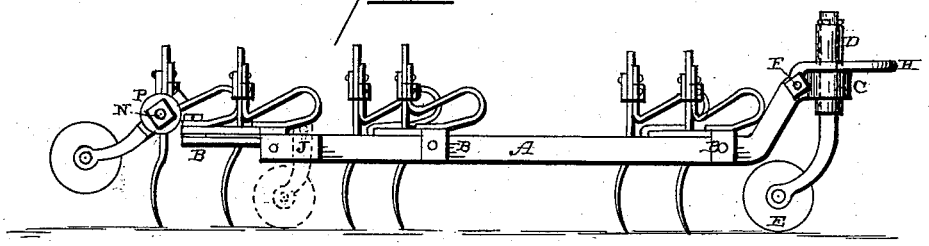


Fig. 3.

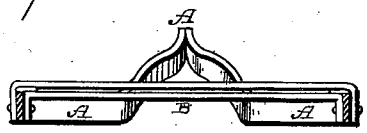


Fig. 4.

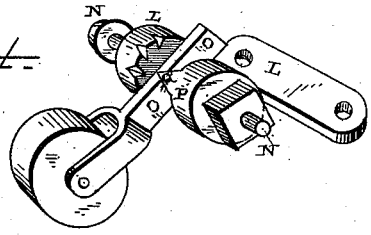
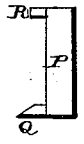


Fig. 5



Witnesses.
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Edm. P. Ellis.

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UNITED STATES PATENT OFFICE.

GEORGE W. GORSUCH, OF MARTINSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO PHILIP H. BRIDENBAUGH, OF SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 381,835, dated April 24, 1888.

Application filed January 16, 1888. Serial No. 260,918. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. GORSUCH, of Martinsburg, in the county of Blair and State of Pennsylvania, 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in harrows; and it consists in, first, a harrow-frame in which the side bars are formed from one continuous metal rod which is bent at its front end so as to form an eye, through which is passed the tube or sleeve of the front roller, and which tube or sleeve is held in position by a clamping-bolt which is passed through the rod just back of the eye; second, the combination of the harrow-frame provided with keepers at its rear corners, with a supporting-roller which is attached by means of a ratchet to the rear end of the frame, and which roller can be detached from the rear end of the frame and placed in one of the keepers at the side, so as to help to support the frame in being transported from one place to another; and, third, the arrangement and combination of parts, which will be more fully described hereinafter.

The object of my invention is to provide a harrow-frame in which the side bars are formed from a single piece which is so shaped at the front of the frame as to form a clamping-eye to receive the sleeve in which the front supporting-roller is placed; to attach the rear supporting-roller to the frame by means of a ratchet, so as to make the roller adjustable, and thus regulate the height at which the harrow shall run; to make the rear roller detachable from the rear end of the frame, so that it can be applied to a keeper on the side of the frame when the harrow is being transported from place to place.

Figure 1 is a plan view of the harrow-frame which embodies my invention. Fig. 2 is a side elevation of the same. Figs. 3, 4, 5 are detached views.

A represents the side bars of the harrow-frame, which is formed in one continuous piece, and which has extending across its top and connecting the sides together the bent double bars B, to which the harrow-teeth are secured. These bars have their outer ends turned vertically downward, so as to catch against opposite sides of the side bars, A, to which they are rigidly bolted. Double bars are used, as here shown, so as to allow the front ends of the springs, to which the harrow-teeth are fastened, to be clamped rigidly between them. These cross-bars are bent, as shown, so as to throw the teeth out of line with each other and allow them to be placed zigzag.

The front end of the frame is formed into an eye, C, through which is passed the tube or sleeve D of the front roller, E. The roller is swiveled in the tube or sleeve, and the sleeve is secured rigidly in the eye by means of a clamping-bolt, F, which passes through the bar A just back of the eye, and which serves to compress the eye so as to hold the sleeve in any desired position. The same bolt, F, which serves to close the eye upon the sleeve also serves as a pivot upon which the clevis H is fastened. By loosening the bolt F the eye will expand sufficiently to allow the tube or sleeve to be adjusted vertically, and thus the roller E can be adjusted so that the front end of the frame will be either raised or depressed, according as the harrow-teeth are to run shallow or deep.

The front end of the frame is bent upward and then horizontally forward, as shown, so as to form a recess or offset, in which the roller E will operate without being in the way of the frame.

When the frame is to be transported from place to place, it is only necessary to loosen the bolt F and force the sleeve and roller downward, when the frame will be lifted up sufficiently high to clear the harrow-teeth from the ground. Secured to the rear corners of the frame are the keepers J, into which the shanks of the rollers may be passed and then clamped in position, so that the rollers can be used in transporting the harrow from place to place. Secured to the rear end of each harrow-frame is the stationary portion L of the ratchet, and which has its upper end to project backward a suitable distance beyond the rear end of the rear cross-piece of the harrow, and passing through or secured to this part L

is the bolt N, which passes through the upper end of the shank O of the roller. Passing over this bolt and catching over opposite edges of the shank is the movable portion P of the ratchet, which is provided with the sharp projection Q upon one edge to catch in the ratchets of the stationary portion L, and a flange, R, upon its opposite edge, so as to catch over the front edge of the shank O. This point by catching in the ratchets of the part L prevents the movable part from turning upon the bolt, and the flange prevents the shank O from having any turning or pivoted motion upon the bolt. By adjusting this point into different ratchets in the part L the shank of the roller can be rigidly secured in different positions, and thus either raise the rear end of the frame, so that the harrow-teeth will not touch the ground, or can be so adjusted as to regulate the depth at which they shall run.

When the harrow is being moved to and from the field, its rear roller can be removed from the rear end of the frame and placed in one of the keepers J, where it will be held by a suitable set-screw.

It is intended to use two of the frames together, and each one will be provided with handles in order to be used as a single cultivator when desired. The front and rear wheels attached to each section also serve the purpose of allowing the harrows more freedom in following the unevenness of the ground and also to prevent the harrows from sliding sidewise on slanting ground.

In case it should not be desired to use the bent cross-bars, double side bars may be used, in which case the shapes of the springs to which the harrow-teeth are fastened will be changed or some springs made longer than others, so as to carry the harrow-teeth farther back, and thus have the teeth out of line with each other.

Having thus described my invention, I claim—

1. In a harrow, the frame A, formed from a single continuous rod which is formed into an eye at its front end, in combination with the sleeve in which the front roller is swiveled, and the clamping-bolt by which the eye is closed around the sleeve, substantially as shown.

2. In a harrow, the frame A, formed from a single continuous rod which is bent or turned upward at the front end of the frame and formed into an eye, in combination with the roller which supports the front end of the frame, the sleeve in which the roller is swiveled, and the clamping-bolt, substantially as described.

3. The combination of the harrow-frame, the rear cross-bar having the stationary portion L of the ratchet rigidly secured thereto, the rear roller provided with a perforated shank, the clamping-bolt, the movable part of the ratchet provided with a point to engage with the stationary part L, and a flange to catch over the front edge of the shank of the roller, and the clamping-nut, substantially as set forth.

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

GEORGE W. GORSUCH.

Witnesses:
B. H. LEHMAN,
C. SKYLES.