2 Sheets--Sheet 1.

A. M. STRATTAN.

Harrow and Roller.

No. 161,838. Patented April 6, 1875.

FIG. 1.

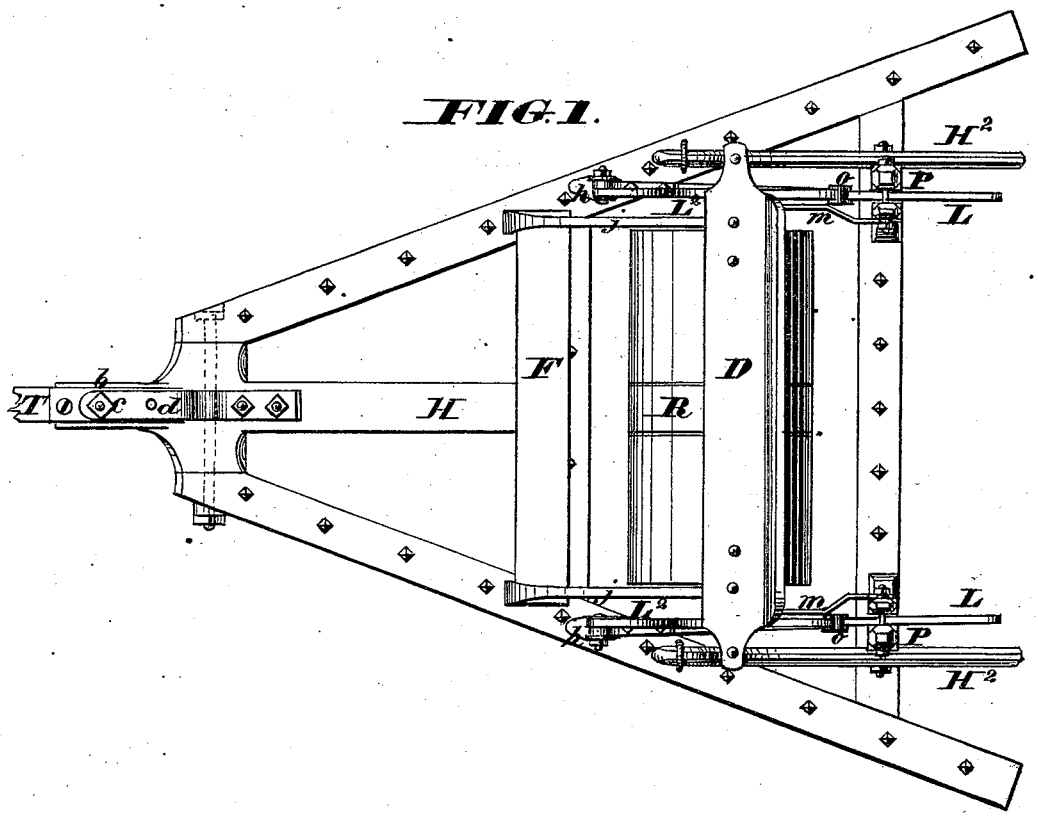
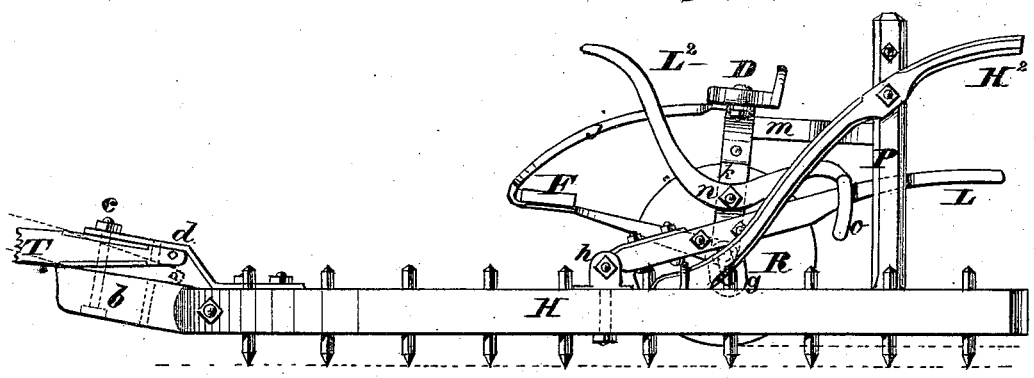


FIG. 2.



WITNESSES

Jas. L. Ewin

Henry Tanner.

INVENTOR

Allen M. Strattan

By Knight Bros Attorneys

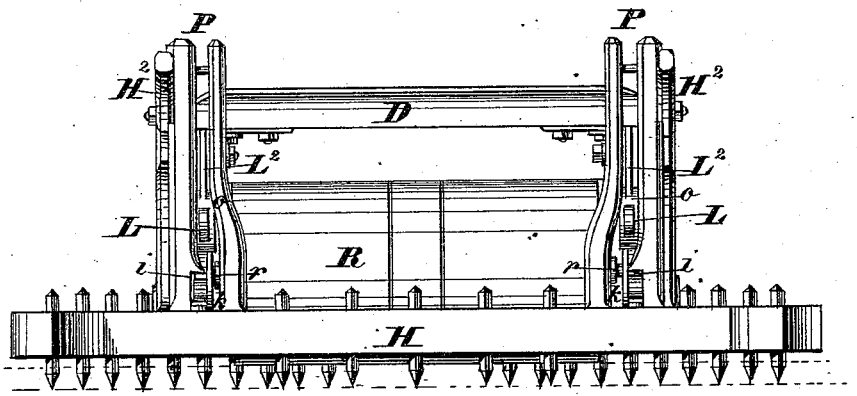
2 Sheets--Sheet 2.

A. M. STRATTAN.

Harrow and Roller.

No. 161,838. Patented April 6, 1875.

FIG. 3.



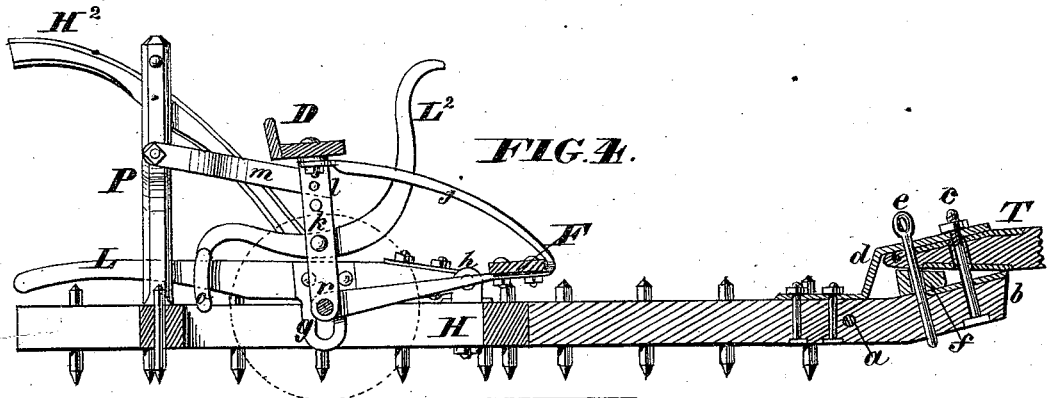


FIG. 4.

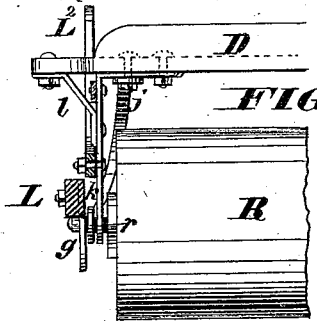


FIG. 5.

WITNESSES

Jas. L. Lowin

Henry Tanner.

INVENTOR

Allen M. Strattan.

By Knight Bros Attorneys

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

ALLEN M. STRATTAN, OF LADOGA, INDIANA.

IMPROVEMENT IN HARROWS AND ROLLERS.

Specification forming part of Letters Patent No. **161,838**, dated April 6, 1875; application filed January 28, 1875.

To all whom it may concern:

Be it known that I, ALLEN M. STRATTAN, of Ladoga, in the county of Montgomery and State of Indiana, have invented an Improved Combined Harrow and Roller, of which the following is a specification:

This invention relates to those agricultural implements which are designed for pulverizing and mellowing the surface soil preliminary to drilling, or for working in sown seed, by simultaneously harrowing and rolling the surface.

The present invention consists, first, in a tongue attachment adapted to render the harrow perfectly free while at work, and to hold it rigidly in line with the tongue while going to and from the field, the same comprising a peculiar combination of parts.

The invention consists, secondly, in a seat, with or without a foot-board or step, mounted directly upon the journals of the roller instead of on the harrow-frame, and attached to the latter through the medium of posts and pivoted links. The weight of the driver is thus applied exclusively to the roller, while at the same time the seat is securely supported in vertical position.

The invention consists, thirdly, in a pair of hand-levers hinged to the harrow-frame, fulcrumed on the journals of the roller, and engaging with notched posts on the harrow-frame, for elevating and supporting the harrow clear of the ground at the will of the driver.

The invention consists, fourthly, in a pair of supplemental hand-levers, fulcrumed at the sides of the seat-frame, in combination with the aforesaid levers and notched posts, for elevating the harrow from the driver's seat.

In the accompanying drawings, Figure 1 is a plan view of this improved harrow and roller. Fig. 2 is a side elevation of the same as at work. Fig. 3 is a rear elevation thereof. Fig. 4 is a vertical longitudinal section, representing the harrow in elevated position, and the tongue attachment as rendered rigid, for traveling to or from the field. Fig. 5 is a partial transverse section, looking forward, representing the details of one end of the seat-frame.

This improved implement comprises a harrow, H, of the drag form and of triangular shape; a cylindrical roller, R, composed of three sections in the illustration; a tongue, T, for applying draft; a driver's seat, D, and a pair of handles, H^2, applied to the harrow-frame, which parts are old and well known, in themselves considered. The front end of the triangular harrow-frame is, by preference, strengthened by means of a transverse bolt, *a*, by which the side bars are strongly attached to a central draft-bar, *b*. The front end of this projects obliquely upward, and is perforated for the reception of a draft-bolt, *c*, which passes upward through a perforation in the rear end of the tongue, and through a perforated hasp or clevis, *d*, in combination with which it attaches the tongue. The hasp or clevis *d* is bolted to the draft-bar *b* of the frame, and is bent so as to present an elevated bar or tongue parallel to the upturned end of the draft-bar *b*. The rear end of the tongue is constructed of wedge shape, and its perforation for the reception of the attaching-bolt *c* is made large, so as to allow the tongue or harrow to work vertically, as well as laterally, on the attaching-bolt as a pivot. This provides for giving the harrow the required freedom of movement in the field. To render the tongue rigid, so as to put the implement under the control of the team and driver in traveling to and from the field, a drop-pin, *e*, and a washer, *f*, Fig. 4, are provided, in connection with perforations in the hasp or clevis, tongue, draft-bar, and washer, for the reception of the drop-pin. Without this provision, going down hill and turning sharp corners with the harrow elevated would be attended with considerable difficulty and danger.

The roller R is attached to the harrow-frame through the medium of a pair of hand-levers, L, carrying slotted journal-plates *g*, to receive the projecting spindles or journals *r* of the roller; the slots permitting the harrow and roller to rise and fall independently while at work.

The levers L are attached at their front ends to the harrow-frame by hinges *h*, the respective members of which are bolted to the harrow-frame and levers, respectively. The rear ends of the levers project rearwardly through spaces in double posts P, erected on the rear bar of the harrow-frame, and pro-

vided with retaining-notches *i*, for the reception of the rear ends of the levers when the harrow is elevated, as illustrated in Fig. 4. The harrow is lifted by depressing the levers L, the journals of the roller forming fulcrums, and the motion being applied through the hinges *h*. The handles H^2 and the posts P are united by bolts at or near the upper ends of the latter, and are thus mutually braced.

A foot-board or step, F, is, by preference, combined with the driver's seat D, and they are united by properly-bent metallic bars *j*, the extremities of which are perforated and applied to the journals *r* of the roller. A pair of vertical bars or posts, *k*, extend directly upward from the roller-journals to the ends of the seat, being perforated for the reception of the former, and attached to the seat by bolts, and strengthened at this point by external knee-braces *l*. The seat-frame is supported in vertical position by a pair of links, *m*, attached by pivotal bolts to the seat-posts *k* at or near their upper ends, and to the posts P on the harrow-frame behind. Provision is thus made for throwing the entire weight of the driver, when he rides, upon the roller, and not upon the harrow, so as to leave the latter unweighted, while the seat is rendered perfectly safe.

For elevating the harrow from the driver's seat, a pair of curved hand-levers, L^2, are provided. These are fulcrumed by bolts *n*, attaching them to the seat-posts *k*, and their rear ends *o*, through which power is applied, are made of sufficient width, and are slotted to embrace the main levers L. By pulling on the hand-levers L the driver can depress the rear ends of the main levers L and cause them to perform their function, in the manner already described. The levers have sufficient lateral play to enable the driver to readily throw the rear ends of the main levers L laterally into the retaining-notches *i*. This secures the harrow in elevated position.

It will be observed that the driver may ride without weighting the harrow, or he may walk behind the implement, if he so prefers; and in either case he can readily raise and lower the harrow, as may be required. He can also permit the harrow to swing freely, or fix it rigidly in line with the tongue, at will, and having elevated the harrow and fixed the tongue, he can ride to or from the field and control the implement with perfect safety and ease.

The harrow can be used with or without the roller, and can be used also in cultivating corn.

The following is claimed as new in this invention, namely:

1. The tongue T, having a wedge-shaped and perforated rear end, and the drop-pin and washer *e f*, in combination with the central draft-bar *b*, draft-bolt *c*, and hasp or clevis *d*, substantially as herein shown and described, for the purpose set forth.

2. The combination, in a combined harrow and roller, of vertical bars or posts *k k*, mounted directly upon the journals of the roller, rigid posts P on the harrow-frame, and pivoted connecting-links *m*, for securely supporting a driver's seat, so as to leave the harrow unweighted, in the manner set forth.

3. The hand-levers L, attached by hinges *h* to the harrow-frame, and fulcrumed on the journals of the roller R, in combination with posts P on the harrow-frame, having retaining-notches *i*, substantially as herein described, for elevating the harrow-frame and supporting the same in elevated position.

4. The supplemental hand-levers L^2, fulcrumed by attaching-bolts *n* at the sides of the seat-frame, and constructed with extended and slotted rear ends *o*, substantially as shown and described, in combination with the horizontal levers L, attached to the harrow-frame by hinges *h*, and fulcrumed on the journals of the rollers, for elevating the harrow from the driver's seat, in the manner set forth.

ALLEN M. STRATTAN.

Witnesses:

WILLIAM FREEMAN,

BENJ. F. STOVER.