

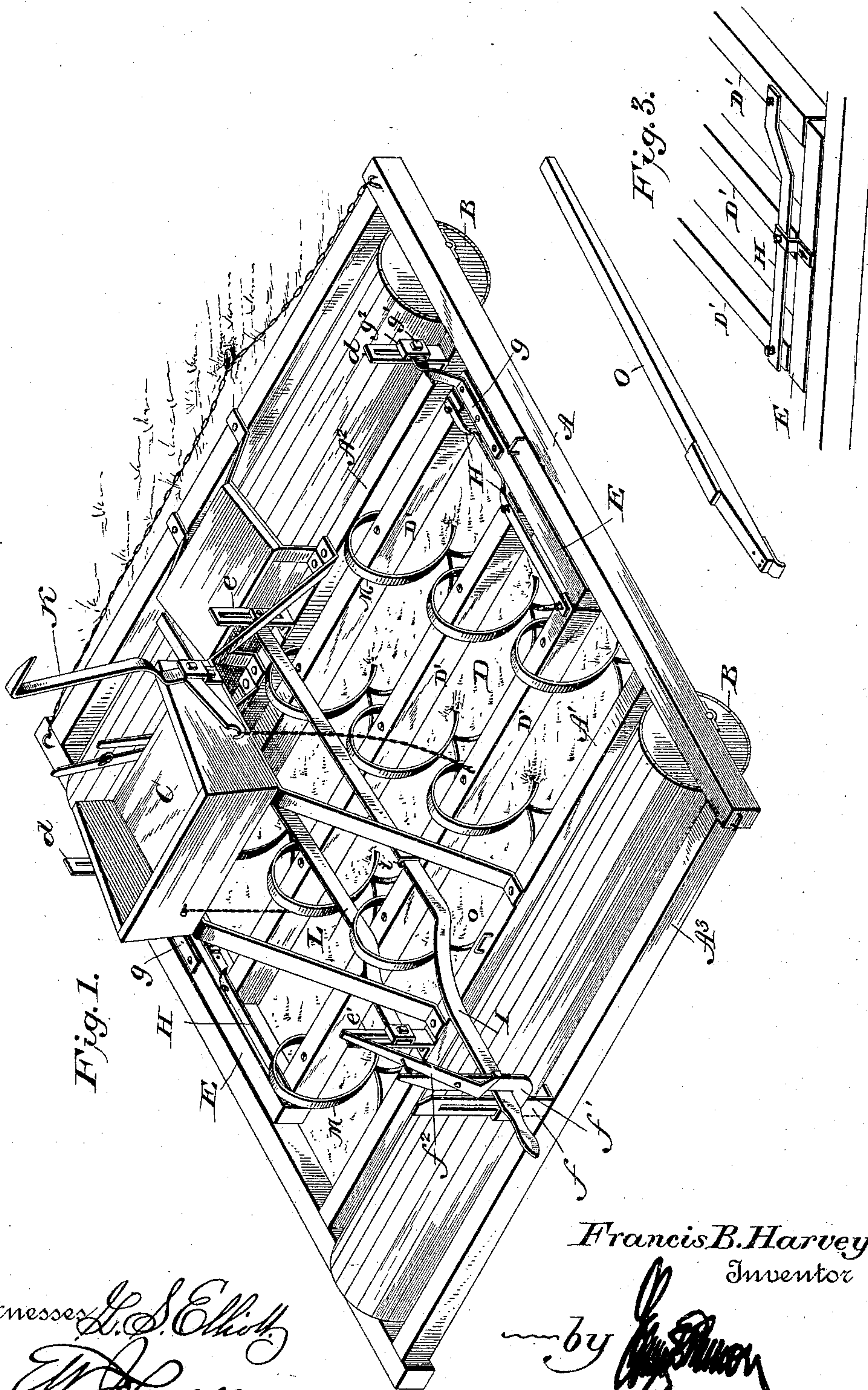
(No Model.)

2 Sheets—Sheet 1.

F. B. HARVEY.
HARROW AND ROLLER.

No. 473,746.

Patented Apr. 26, 1892.



Witnesses *L. S. Eliot*
M. Johnson

Francis B. Harvey.
Inventor

by *[Signature]*
Attorney

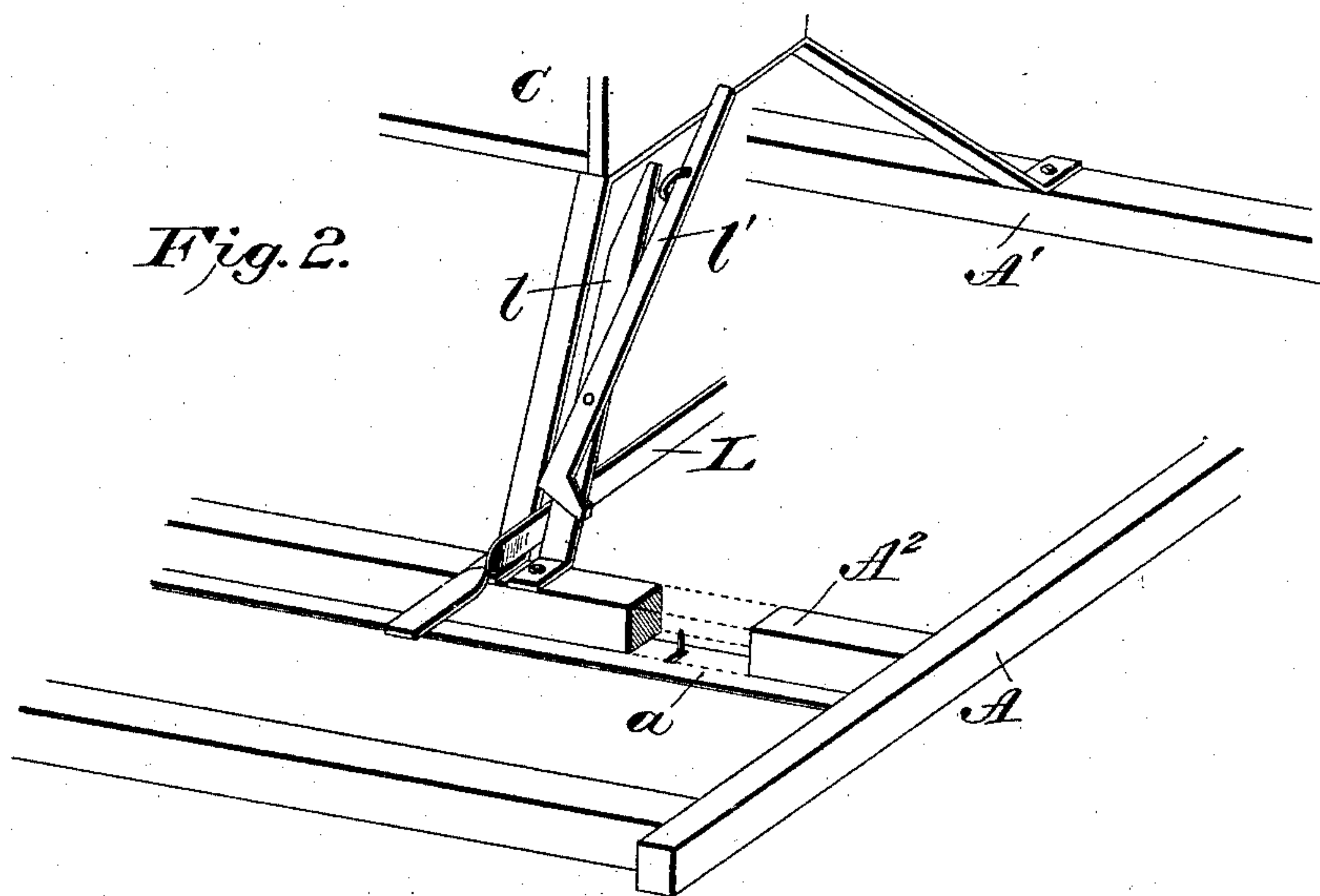
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UNITED STATES PATENT OFFICE.

FRANCIS B. HARVEY, OF PICKERING, PENNSYLVANIA.

HARROW AND ROLLER.

SPECIFICATION forming part of Letters Patent No. 473,746, dated April 26, 1892.

Application filed November 5, 1891. Serial No. 410,994. (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 Pickering, 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 harrows and rollers.

The object of the invention is to provide a roller-frame with a harrow-section, which is carried centrally therein, and is adjustable with respect to said roller-frame, so that the spring-teeth carried thereby can be caused to enter the ground to the desired depth, the bars of the harrow-frame being adjustable upon their pivots independent of the vertical adjustment of the harrow-frame; and it consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of a roller and harrow embodying my improvements. Fig. 2 is a detail perspective view of one of the means employed for adjusting the harrow-section vertically. Fig. 3 is a detail view of means employed for turning the tooth-carrying bars with respect to the side beams of the harrow-frame.

A refers to the roller-frame, which is made up of side and end beams rigidly connected to each other and braced by transverse beams A' and A². At the front and rear ends of this frame the rollers B B are journaled, as shown. The transverse beam A² carries a scraper *a*, which is provided with slots through which the securing-bolts pass, so that said scraper can be adjusted to and from the roller. A similarly-constructed scraper is also carried by the rear beam A³.

To the forward end of the roller-frame is attached a draft-chain of ordinary construction. A platform *b* is supported upon the front transverse beams of the frame, so as to

position the same over the central portion of the roller, and rear of this platform is supported a seat C by standards, which are rigidly secured to the cross-beams A' and A². The cross-beam A² carries near each end an upright *d*, which is slotted, as shown, and a similar upright *e* is rigidly secured near the center of said beam. Slotted uprights *e'* and *f* are also carried by the cross-beams A' and A³.

D refers to the harrow-section, which preferably consists of three cross-bars D', connected pivotally to the end pieces E E, so that they can be turned on their pivots or rocked to vary the angle of the teeth carried thereby. The forward ends of the end pieces E have secured thereto straps *g*, the forward ends of which are bent upward at an obtuse angle and given a half-turn and perforated to receive the pivot-bolts *g'*, which pass through angle-plates *g''*, and are provided with nuts to rigidly clamp said plates to the slotted standards *d*.

When it is desired to adjust vertically the harrow-frame at its front end, it is only necessary to loosen the nuts carried by the pivot-bolts and make the adjustment upon the standards *d*. The bars of the harrow-frame are connected to each other by straps H H, which are adjustably secured to the end pieces so that said bars can be turned upon their pivots to vary the angle of the spring-teeth carried thereby. In Fig. 1 of the drawings I have shown this adjustment accomplished by the construction above described; but in Fig. 3 the adjustment is made by employing a single bar, which is connected centrally to the end piece E by a short plate having a slot and projecting end, so that the bar when shifted to one side or the other may be locked. The bolts or pins which secure the bar or bars H to the cross-bar of the harrow-frame project upward, so that they will not hold the bar H in close engagement therewith, and the apertures in the bars H through which said bolts pass are sufficiently large to permit the parts to have sufficient play upon each other.

Instead of having circular apertures through which the bolts pass, slots may be provided, if desired. In this instance one end of the bar H is bent to one side, so that a tooth can be located at the end of the harrow-bar.

I refers to a lever, the front end of which is

pivotaly secured to the slotted standard *e* by a bolt which passes through an angle-plate to make an adjustment on this standard similar to that made on the standard *d*, and this lever passes through a staple or bail *i*, carried by the rear bar of the harrow-frame, and the end thereof projects beyond the rear end of the roller-frame and at an intermediate point lies between the standard *f* and a bracket-arm *f'*, adjustably secured to said standard, the adjustment being similar to that on the other standards. A lever *f*² is pivoted to near the upper end of the bracket-arm *f'* and carries a loop for engagement therewith, while an offset at the lower end of the lever is provided to engage with the side of the bracket-arm. This construction of the bracket-arm and standard serves to hold the free end of the lever *I* against either upward or downward movement, and by properly adjusting the bracket on the standard the movement of the harrow-frame can be limited.

In adjusting the front end of the harrow-frame the straps *g* and forward end of the lever *I* should be positioned on the same horizontal line. The lever *I* is only used when the driver or attendant walks, and when the driver occupies the seat *C* the pivoted lever *f*² is locked out of the way of the lever *I* by causing the loop to engage with the standard.

Attached to the side of the seat is a bell-crank lever *K*, having a grasping handle, the rearwardly-projecting member of said lever being connected to a chain which is made fast to the harrow-section, so that said harrow-section can be raised by operating said lever from the driver's seat.

L refers to a lever which is secured to an adjustable pivot on the standard *e'*, and this lever is bent downward so as to permit the same to bear on the rear end of the harrow-frame. The forward end of this lever is located at one side of one of the seat-supports, which, with the upright *l*, forms a guide therefor, the upright *l* carrying a lever *l'*, having a loop at its upper end and an offset at its lower end. From this construction it will be understood that the harrow can be operated from the driver's seat to either elevate the harrow by means of the lever *K* or depress the same by means of the lever *L*, and may be locked in a depressed position by moving the lower end of the lever *l'* in the path of the lever *L*.

In connection with the harrow and roller

herein described I have shown a brake consisting of a lever *O*, the hooked end of which is passed into the staple *o* and the bearing-face *o'* forced upon the roller *B* to retard the rotation thereof.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a harrow and roller frame constructed substantially as shown and provided with a cross-beam *A*², vertical standards or uprights secured to said beam, angle-plates *g*², rigidly bolted to said standards, straps *g*, pivoted between the angle-plates and standards and secured at their opposite ends to the harrow-frame, and a lever *I*, bearing upon a pivot adjustable on a standard secured to the roller-frame, said lever being adapted to engage with the harrow-frame, substantially as shown, and for the purpose set forth.

2. In a combined harrow and roller constructed substantially as shown and provided with a pivoted lever *I*, a slotted upright *f*, carrying a bracket-arm *f'*, adjustably secured thereto, and a pivoted locking-lever *f*², substantially as shown, and for the purpose set forth.

3. In a roller and harrow constructed substantially as shown, the combination of a support or standard, a bracket-arm carried thereby and having a portion parallel with the standard, a lever or lock pivotaly secured in place and provided with an offset having a bent end, which engages with the outer vertical edge of the bracket-arm to limit the swinging movement thereof in one direction, and a link for holding the lever in engagement with the upper end of the bracket-arm, substantially as set forth.

4. In a roller and harrow carrying upwardly-projecting standards and levers pivotaly connected thereto, angle-plates *g*², having apertures for the passage of the pivot-bolts, and nuts for clamping the plates against the standards, 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:

HARRY G. HOWARD,
CLARA B. HOWARD.