O. W. GOODALE.

RIDING HARROW.

APPLICATION FILED MAR. 17, 1909.

946,031.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.

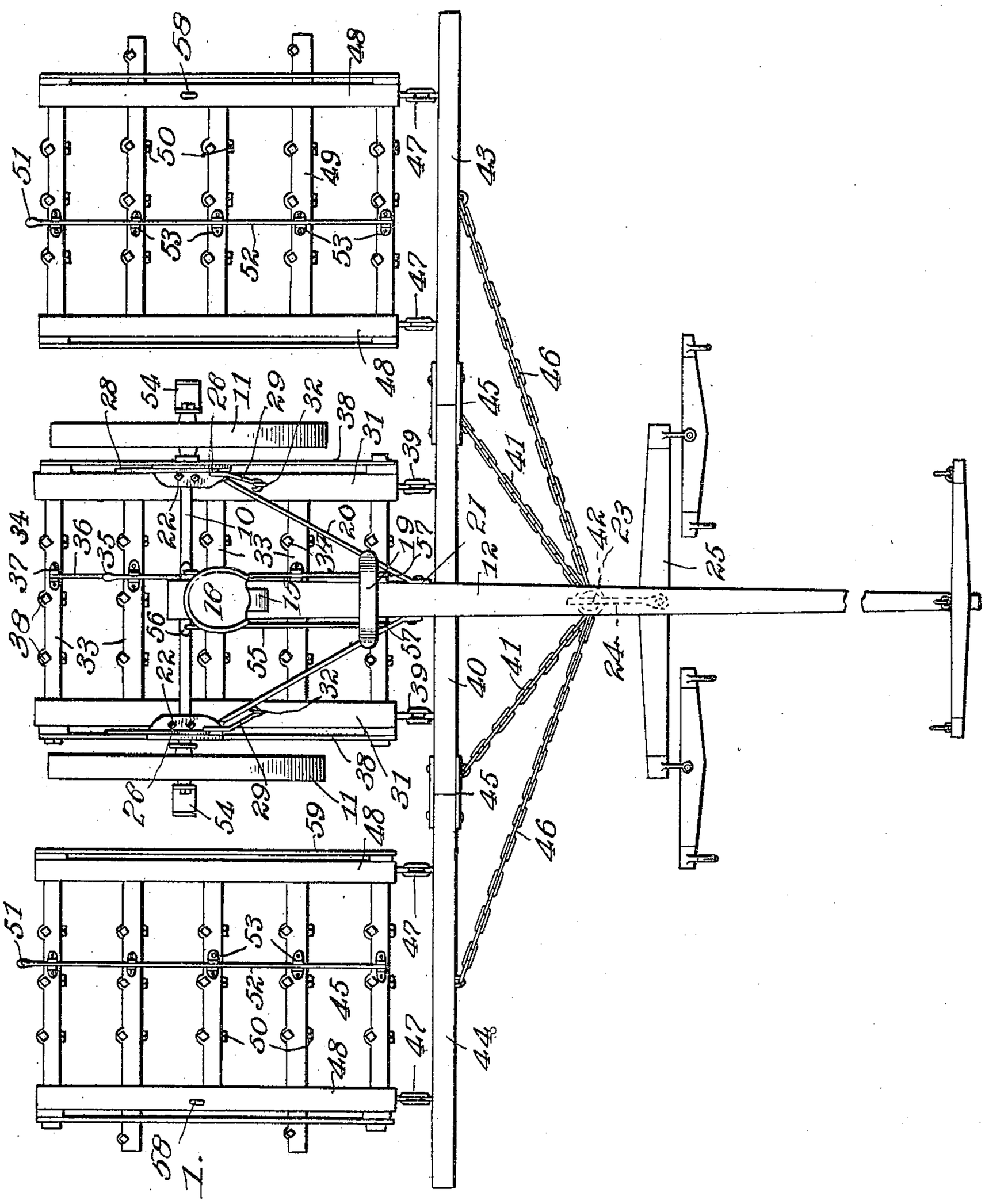

Fig. 1.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

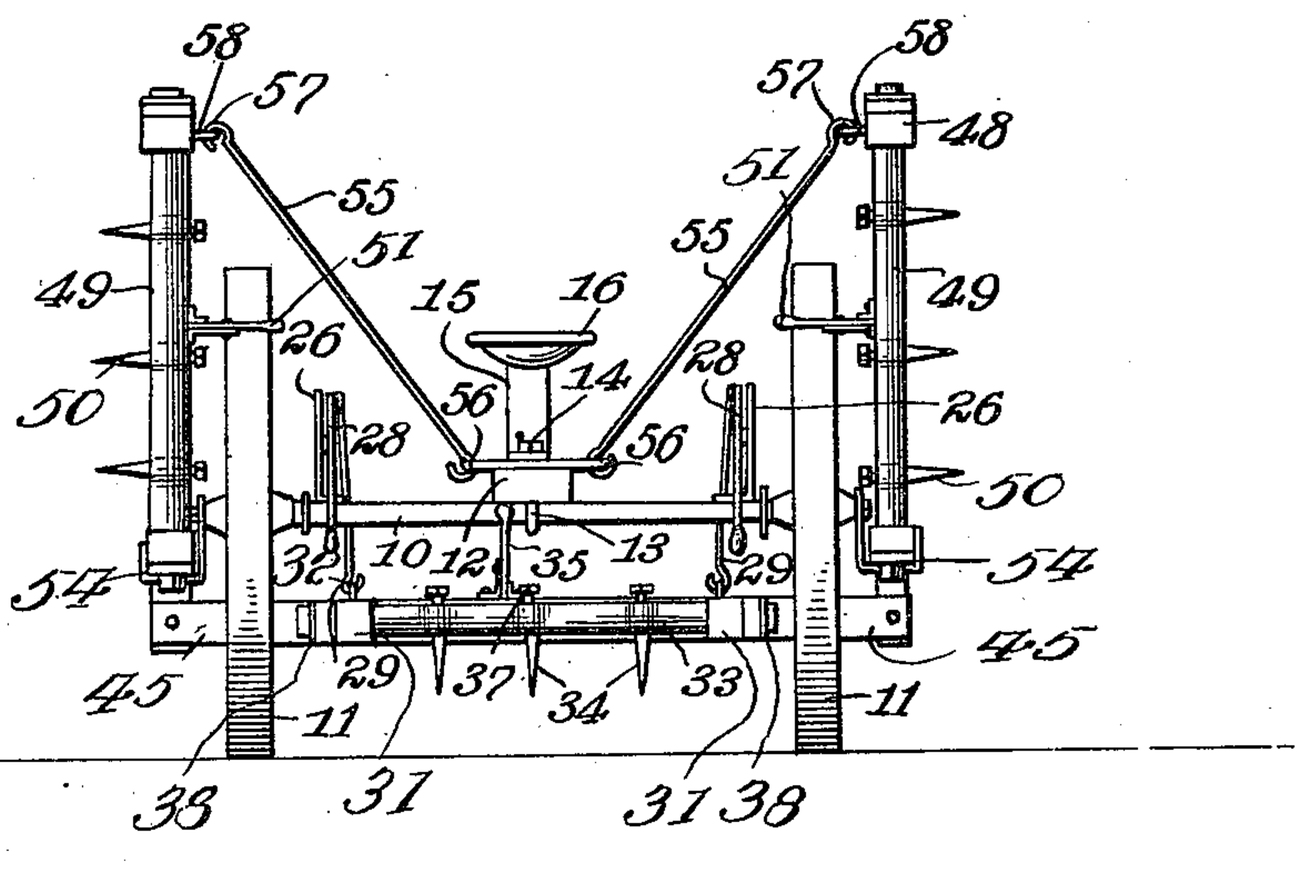


Fig. 3.

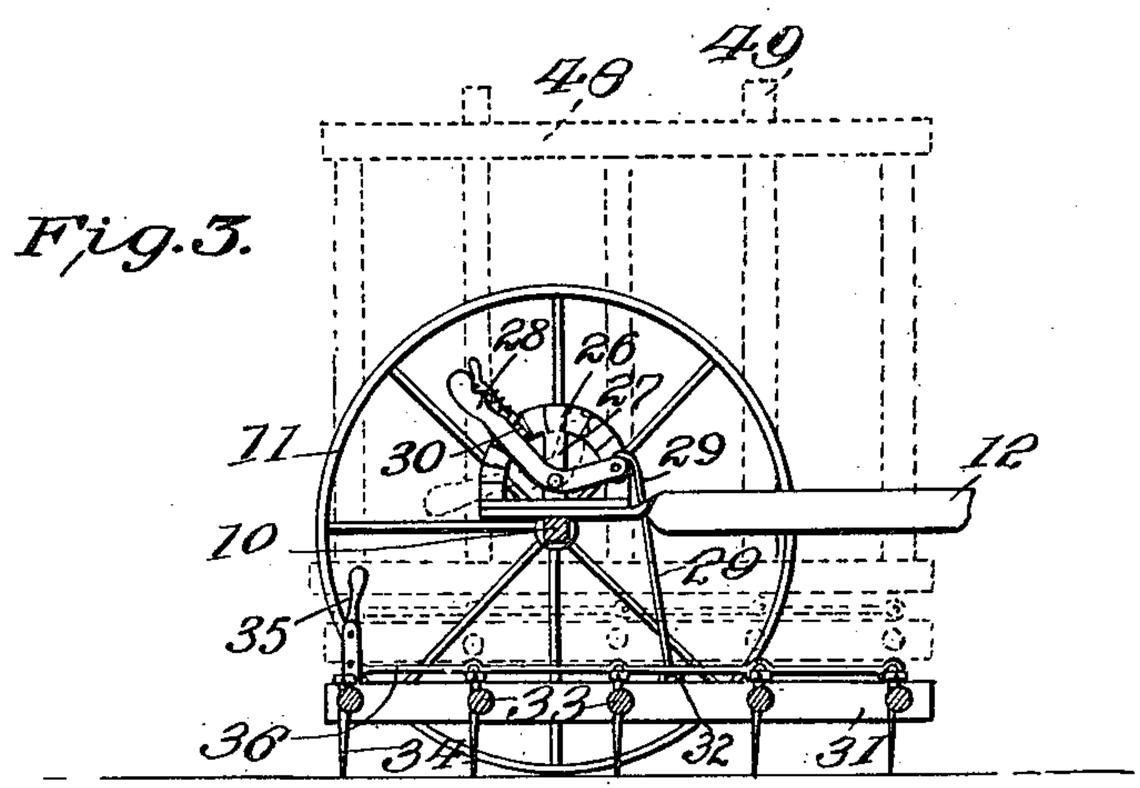
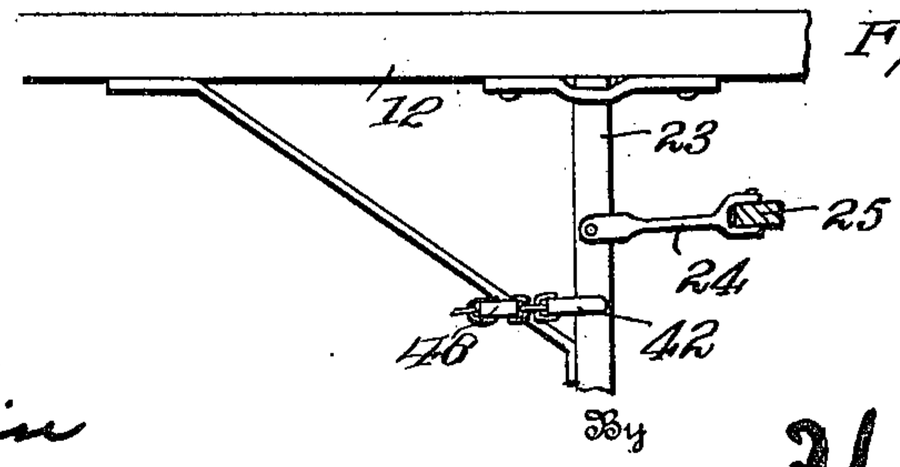


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

OTTO W. GOODALE, OF NORTON, KANSAS.

RIDING-HARROW.

946,031. Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed March 17, 1909. Serial No. 483,905.

To all whom it may concern:

Be it known that I, OTTO W. GOODALE, citizen of the United States, residing at Norton, in the county of Norton and State of Kansas, have invented certain new and useful Improvements in Riding-Harrows, of which the following is a specification.

This invention relates to harrows and refers particularly to that class of harrows which are known as riding harrows.

An object of this invention is to so construct a device of this nature which is provided with means whereby the harrows may be raised from the ground when it is desired to convey the implement from one field to another or to draw the same over a road.

The invention has for another object the provision of a harrow of this nature which is provided with means whereby the harrows mounted upon the frame may be adjusted and may be thrown into inoperative position in a short time and which, when in inoperative position will clear the ground and enable the device to ride freely thereover.

The invention further aims at the arrangement of harrows from a frame of this construction which admits of the support of the same and of the application of equal tension upon each of the harrows as the same are drawn over the ground.

The invention has for a still further object the provision of a novel riding truck or frame which admits of the raising of the harrows thereon without the necessity of detaching the draft animals therefrom, and which enables the easy and quick operation of the same and therefore provides a construction which comprises but few parts which are of simple formation and which are formed for strength and durability so as to produce an implement which is of great practical advantage to the art.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which:—

Figure 1 is a top plan view of the complete device in operative position. Fig. 2 is a rear elevation of the device showing the harrows in a folded and raised position, and Fig. 3 is a longitudinal vertical section through the complete device. Fig. 4 is a detailed view of the tongue and brace depending therefrom in side elevation.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings the numeral 10 designates an axle upon the outer extremities of which are disposed a pair of wheels 11 which are adapted to support the entire device. The axle 10 is adapted for fixed relation and is provided with a tongue 12 which is secured to the same by means of a clamping bolt 13 which is of U-formation and which extends upwardly from about the axle and engages through the inner extremity of the tongue 12 where it is held in position by means of suitable clamping nuts 14. The tongue 12 is provided at a point immediately forward of the axle 10 with an upwardly extended spring seat post 15 upon which a seat 16 of any suitable construction is positioned for the accommodation of the operator. Forwardly positioned upon the tongue 12 a foot-rest 19 is located which accommodates the feet of the operator to form a brace when operating the device. Disposed between the opposite ends of the axle 10 and a point intermediately of the tongue 12 are braces 20 which are secured at their forward extremities by means of a bolt 21 extended therethrough and engaged with the tongue 12 and are held at their rear extremities inwardly of the wheels 11 by means of clamping members 22 for engagement about the axle 10 which extend upwardly therefrom to engage through the rear ends of the braces 20 and to be held in such position by clamping nuts of any suitable construction.

The tongue 12 is provided with a brace rod 23 which is secured upon the under face thereof adjacent the braces 20 and which is extended downwardly to support and hold in rigid position a clevis 24 which is secured thereto at the lower extremity and which is mounted upon the tongue 12 at its upper end. The clevis 24 is provided with a draft equalizer 25 of any common formation to which the draft animals are secured. Supported upon the rear extremities of the braces 20 above the axle 10 are segments 26 which comprise arcuate portions of metal having inwardly extended extremities for engagement upon the clamps 22 and are rigidly connected therewith and which are supported by means of vertical arms 27 disposed centrally within the segments 26 and extended upwardly from the braces 20. The arms 27 are each provided with a

hand lever of L-formation 28 which is fulcrumed upon the arm 27 and which is pivotally connected at its short arm to a link 29 which loosely depends therefrom. The long arm or handle of the lever 28 is provided with a pawl 30 of adaptable construction which is adapted to engage in the teeth of the segments 26. Supported upon the links 29 is a harrow which extends beneath the frame and which is confined between the wheels 11, the harrow comprising parallel beams 31 which are longitudinally disposed and which are provided with eyes 32 for pivotal engagement with the lower extremities of the links 29. The parallel beams 31 are provided with a plurality of transverse rotary shafts 33 from which depend pluralities of harrow teeth 34 and which are disposed at various angles through the medium of a hand-lever 35 which is upwardly extended from one of the transverse shafts 33 intermediately thereof. The hand-lever 35 is rigidly carried upon one of the transverse shafts 33 and is connected through the medium of a bar 36 to a plurality of lugs 37 upwardly extended from the remaining shafts 33 for the purpose of imparting a uniform rotary motion to the same. The beams 31 are each provided along their outer faces with metallic strips 38 which are adapted to protect the beams when a lateral swinging motion causes the abutment of the same against the wheels 11. The forward extremities of the beams 31 are provided with links 39 which are loosely connected to a transverse beam 40 which is carried thereby. The transverse beam 40 is provided with chains 41 or a like flexible connection at its opposite extremities which extend forwardly and inwardly therefrom and are engaged upon a ring 42 mounted loosely in the lower end of the clevis 24. Extension beams 43 and 44 are hingedly carried upon the opposite extremities of the transverse beam 40 and are connected to the same by means of strap hinges 45 which are mounted upon the adjacent extremities of the same. The extension beams 43 and 44 are provided intermediately with chains 46 or the like which are extended forwardly and inwardly therefrom and engaged through the rings 42 carried by the clevis 24. This construction admits of the uniform strain upon the beams 40, 43 and 44 and eliminates the liability of the warping or splitting of the transverse beam 40.

The extension beams 43 and 44 carry links 47 on their rear edges which are disposed in spaced relation toward the opposite ends thereof and which are loosely connected to the forward extremities of beams 48 which are disposed in pairs upon the opposite sides of the wheels 11. The beams 48 are extended rearwardly and are provided with a plurality of transverse shafts 49 which carry depending teeth 50 and which are angularly adjusted by means of an upwardly extended handle lever 51 which is rigidly disposed upon one of the transverse shafts 49. The hand-lever 51 is provided with a bar 52 which extends longitudinally across the upper sides of the transverse shafts 49 and is pivotally connected to the same through the medium of upstanding lugs 53. The beams 48 in conjunction with the transverse shafts 49 mounted thereon form side harrows which are adapted to swing upwardly in a parallel plane with the extension beams 43 and 44 and are supported in such upward position by means of hooks 54 disposed upon the outer extremities of the axle 10 outwardly of the wheels 11 and which are adapted for engagement with the inner beams 48 to support the side harrows. The means for retaining the side harrows in an upwardly folded position comprises a pair of swivelly mounted brace rods 55 which are mounted upon ears 56 outwardly extended from the rear extremity of the tongue 12, the brace rods 55 being provided upon their outer extremities with hooks 57 which are adapted for engagement in eye-bolts 58 carried upon the upper faces of the outer beams 48. The side harrows are each provided with metallic strips 59 which extend longitudinally along the inner edges of the same to form a protection to the harrows when the same are impinged against the wheels 11 by reason of any lateral vibration of the same.

When it is desired to operate the implement the hooks 57 are disengaged from the eye-bolts 58 and the side harrows are raised out of engagement from the hooks 54 to admit of the swinging of the same outwardly and downwardly, carrying the extension beams 43 and 44 therewith. This operation causes the chains 46 to be drawn taut thereby producing an equal strain upon the beams when the device is drawn forwardly. The teeth 50 of the side harrows are adjusted to the desired position by means of the hand lever 51 which rotates the transverse shafts 49 and the teeth 34 carried by the intermediate harrow are adjusted through the medium of the hand lever 35.

When it is desired to convey the implement from the field or the like, the side harrows are folded upwardly against the outer faces of the wheels 11 and are raised to engage the same upon the hooks 54 when the brace rods 55 are extended outwardly to engage the hooks 57 within the eye-bolts 58 and thereby support the side harrows in a raised position. The levers 28 which are carried upon the braces 20 are now swung backwardly to throw the links forwardly and raise the beams 31 to support the intermediate harrow upwardly from the ground. The implement may now be drawn upon the

wheels 11 which prevent the engagement of the harrows with the ground.

Having thus described the invention what is claimed as new is:—

1. An implement as specified comprising a frame, segments mounted on said frame, hand levers carried by said frame adjacent said segments and adapted for adjustment thereon, links depending from said hand levers, a harrow supported upon the lower extremity of said links, a beam transversely mounted on the forward end of said harrow, extension beams hingedly disposed on the opposite extremities of said transverse beam, side harrows supported on said extension beams, hooks carried upon the opposite sides of said frame adapted to support said side harrows in a raised position and braces carried by said frame for detachable engagement with said side harrows to retain the same in a folded position.

2. In a device as specified the combination of a frame, a central harrow carried by said frame, side harrows carried by said frame, hooks mounted on the sides of said frame to support said side harrows when raised and braces carried by said frame for engagement with said side harrows to retain the same in a raised position at times.

3. In a device as specified the combination with a frame having side harrows of hooks mounted upon the opposite sides of said frame for the reception of said side harrows when raised and braces carried by said frame with said side harrows to retain the same upon said hooks.

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

OTTO W. GOODALE. [L. S.]

Witnesses:

CHAS. REPLOGLE,

JAY DAUGHERTY.