

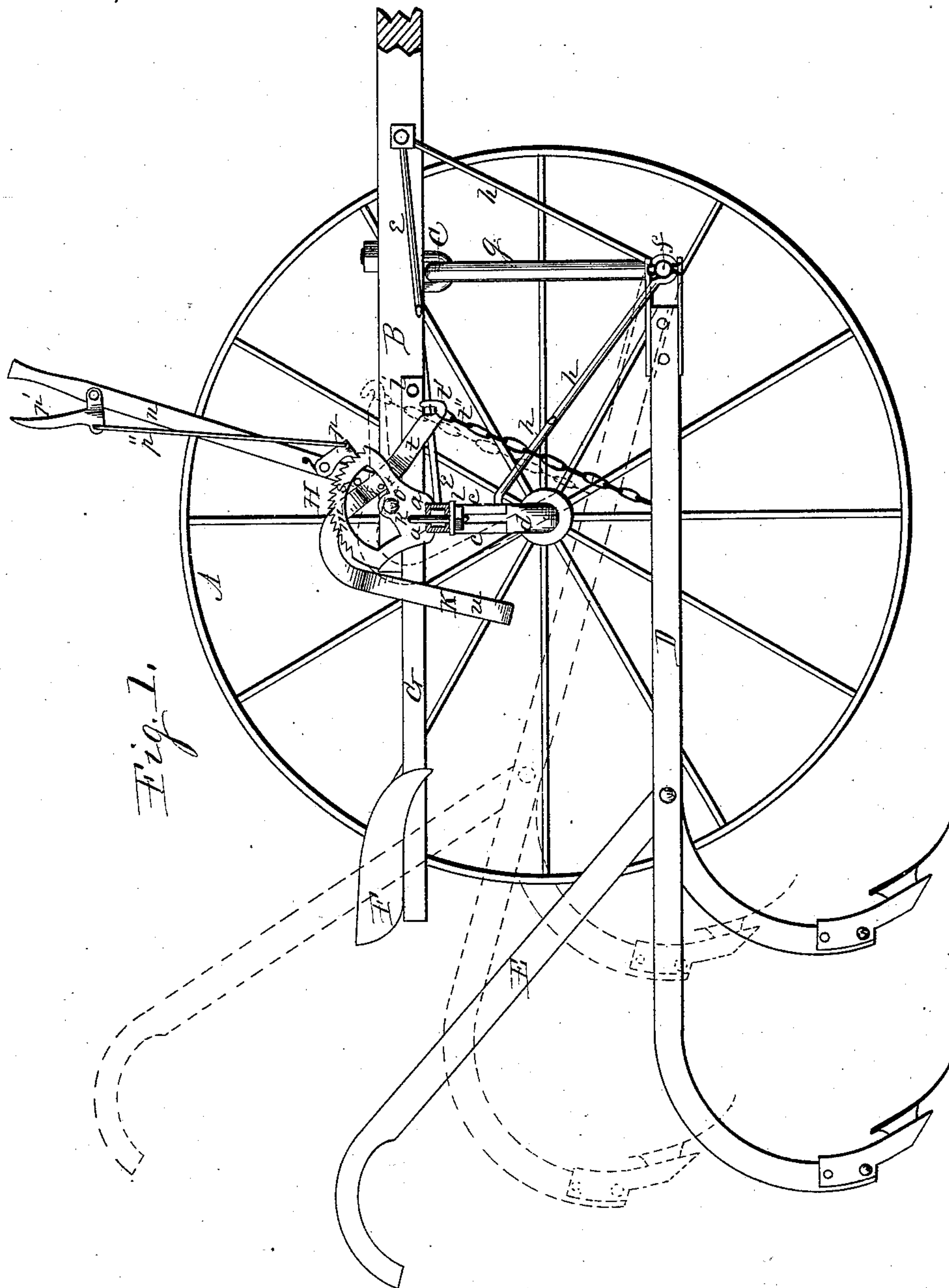
(No Model.)

2 Sheets—Sheet 1.

A. HALL.
CULTIVATOR.

No. 308,765.

Patented Dec. 2, 1884.



WITNESSES.
F. J. Sovereign
A. O. Beckel

Inventor.
Asa Hall.
Per Jacob Behnd.
Att'y.

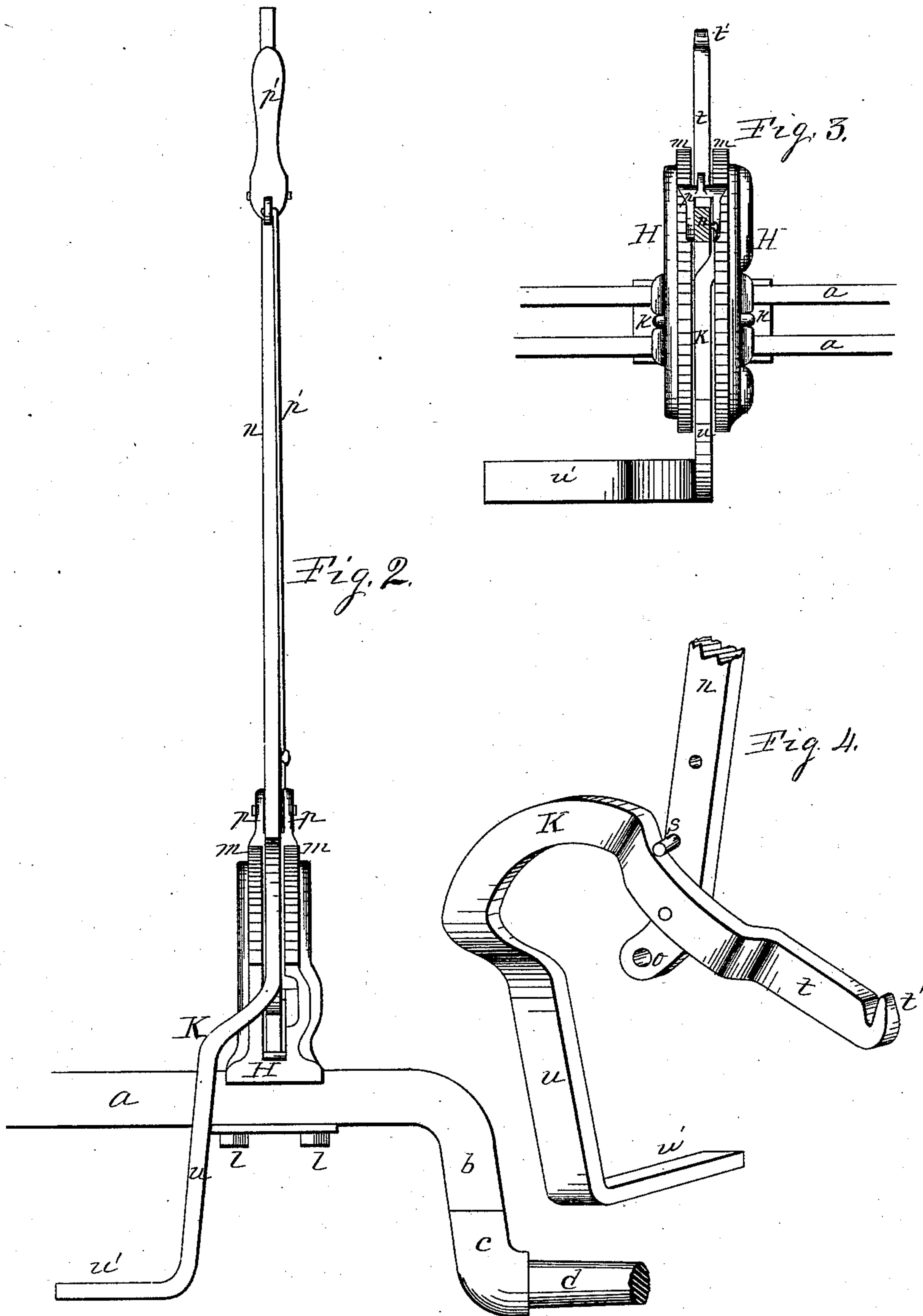
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Atty.

UNITED STATES PATENT OFFICE.

ASA HALL, OF ROCKFORD, ILLINOIS.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 308,765, dated December 2, 1884.

Application filed March 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, ASA HALL, a citizen of the United States, residing in the city of Rockford, county of Winnebago, and State of Illinois, have invented a new and useful Improvement in Cultivators, of which the following is a specification.

This invention relates to that class of cultivators known as "combined riding and walking straddle-row cultivators." Its object is to regulate the running depth of the shovels, when employed either as a riding or walking cultivator, and vary such running depth to any practical degree; to enable the operator, by means of his feet, to control the vertical movements of the shovel-beams when used as a riding-cultivator, and to enable the operator, by means of a hand-lever, to control the vertical movements of the shovel-beams when used as a walking-cultivator, all of which is accomplished by means of a system of levers, to be hereinafter more fully described.

In the accompanying drawings, Figure 1 is a side elevation of a cultivator embodying my invention, and in which portions are broken away to more clearly show my improvements. Fig. 2 is a rear elevation of the raising and lowering mechanism. Fig. 3 is a plan view of the raising and lowering mechanism; and Fig. 4 is an isometrical representation of the compound levers.

The axle-tree in this instance is produced from channel-bars *a*, placed side by side, having their end portions, *b*, curved downward. These down-curving end portions, *b*, of the channel-bars embrace the upward and inward curving arm *c* of the axle-arm *d*, which is fitted to receive the carrying-wheel *A*, to revolve thereon in the usual manner.

At *B* is represented a tongue having its rear end fixed centrally to the axle-tree, from which it extends forward centrally, and its rear portion is also connected with the axle-tree by means of horizontal diagonal braces *e*, to support the parts in their relative position.

At *C* is represented a draft-bar of the usual crank form, having the center of its crowning portion fixed to the under side of the tongue at a point a suitable distance forward of the axle-tree. The horizontal draft portions *f*, ex-

tending laterally from the lower ends of the vertical arms *g* of the draft-bar, are supported to resist the draft-strain by means of suitable braces, *h*, connecting it with the axle-tree and the tongue.

At *D* are represented shovel-beams, produced from suitable bar material, having their rear ends curved, and shovels fixed thereto in the usual manner. The forward ends of these beams have a suitable hinge-joint connection with the horizontal draft-arm *f* of the draft-bar, to permit of a free lateral and vertical movement of their rear ends. These beams are also fitted with handles *E*, for the purpose of controlling the movements of the shovels when the machine is employed as a walking-cultivator.

At *F* is represented a seat mounted upon the supports *G*, extending forward over the axle-tree, and their forward ends are pivoted at *i* to the tongue forward of the axle-tree in such a manner as to permit the seat to be turned forward on the tongue when the machine is employed as a walking-cultivator, and will be supported in the position shown in Fig. 1 when the machine is used as a riding-cultivator. These several parts, in their main features, are substantially such as are now in use, and are to be found in the trade; but in their application differences of mechanical construction will be found by which I produce an improved machine.

At *H* is represented a segment-formed saw-toothed ratchet having its foot portion fitted to embrace the channel-bars of the axle-tree, to which they are fixed by means of a staple-formed stirrup, *k*, passed through the foot portion of the ratchet, and its screw-threaded arms depend, passing between the channel-bars and receive screw-nuts *l*, by means of which the ratchets are firmly fixed to the axle-tree. These ratchets *H* are produced in double form of like segment-bars *m*, suitably separated to receive the double levers between them.

At *n* is represented an adjusting and holding lever having its foot end placed between the segment-ratchets, and pivoted thereto at a point, *o*, concentric with the segments. This adjusting and holding lever is provided with

a spring-actuated pawl, p , pivoted to the lever in such position thereon that its free end will engage the teeth of the ratchets. The spring-actuated pawl p is connected to the thumb-lever p' , pivoted to the hand end of the adjusting and holding lever n , by means of a link, p'' , in such a manner that the operator can disengage the pawl from the teeth of the ratchet to vary the position of the lever relatively with the ratchets.

At K is represented a foot-lever employed to lift the shovel-beams to raise the shovels thereto attached from the ground. This foot-lever K is of the peculiar curved and bent form (shown in the drawings) to fit it to enter between the like segment-bars of the ratchets and adapt it to the purpose intended. This foot-lever has a pivotal connection at r with the adjusting and holding lever n in such a manner as to vibrate between the like segment-bars m .

At s is represented a stop of stud-pin form projecting from the side of the adjusting and holding lever in position to limit the vibration of the foot-lever in its upward direction. The forward arm, t , of the foot-lever is provided with a hook, t' , to receive the links of a chain, t'' , which connects it with the shovel-beams rearward of their hinge-joint connection with the draft-bar in such a manner that the vibrations of the foot-lever will operate to raise or lower the rear end of the shovel-beams. The depending rear arm, u , of the foot-lever is provided with an inward-turned pedal-arm, u' , adapted to receive the foot of the operator mounted in the seat, which when depressed will operate to vibrate the lever on its pivotal connection and lift the shovel-beams.

In the drawings I have represented but a portion of the axle-tree, one axle-arm, one carrying-wheel, shovel-beams for but one side, one double ratchet with its lever appliances, all of which will be required in pairs to produce a complete straddle-row machine, and other parts, not herein shown or described, necessary to produce a complete combined

walking and riding straddle-row cultivator, may be any of the known parts capable of use in connection with my improvements. 50

From the foregoing it will be seen that when the parts are adjusted as represented in Fig. 1 the running depth of the shovels will be limited by means of the foot-lever engaging the stud-stop s ; but by means of the adjusting and holding lever and its pawl-connection with the ratchet mechanism the running depth of the shovels may be varied to any extent within the limits of the devices by the forward or rearward adjustment of the adjusting and holding lever. 55
It will further be noticed that in any adjustment to limit the running depth of the shovels the foot-lever will be free to vibrate for the purpose of elevating the shovels, as shown in the dotted lines, to carry them when required. 60
It will still further be noticed that if the adjusting-lever is carried rearward until the stud-stop engages the foot-lever in its dotted position it will operate to hold the shovels elevated without the aid of the feet of the operator. In this instance I have employed a double ratchet, which construction I prefer, but evidently substantially the same results may be obtained in the employment of a single ratchet and still be within the scope of my invention. 65 70 75

I claim as my invention—

1. The combination, with a segment-ratchet, of an adjusting and holding lever, a foot-lever pivoted thereto and adapted to vibrate independently of said adjusting-lever, and a stop device for limiting the foot-lever, substantially as set forth. 80

2. The combination, with the shovel-beam and with a segment-ratchet, of an adjusting-lever, and a foot-lever pivoted upon said adjusting-lever and formed with a hook at its forward end and a treadle at its rear end, and a stop device and chain, substantially as set forth. 85

ASA HALL.

Witnesses:

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A. O. BEHEL.