H. W. Wattles,

Wheel Cultivator.

No. 93651. Patented Aug. 10. 1869.

Fig. 1.

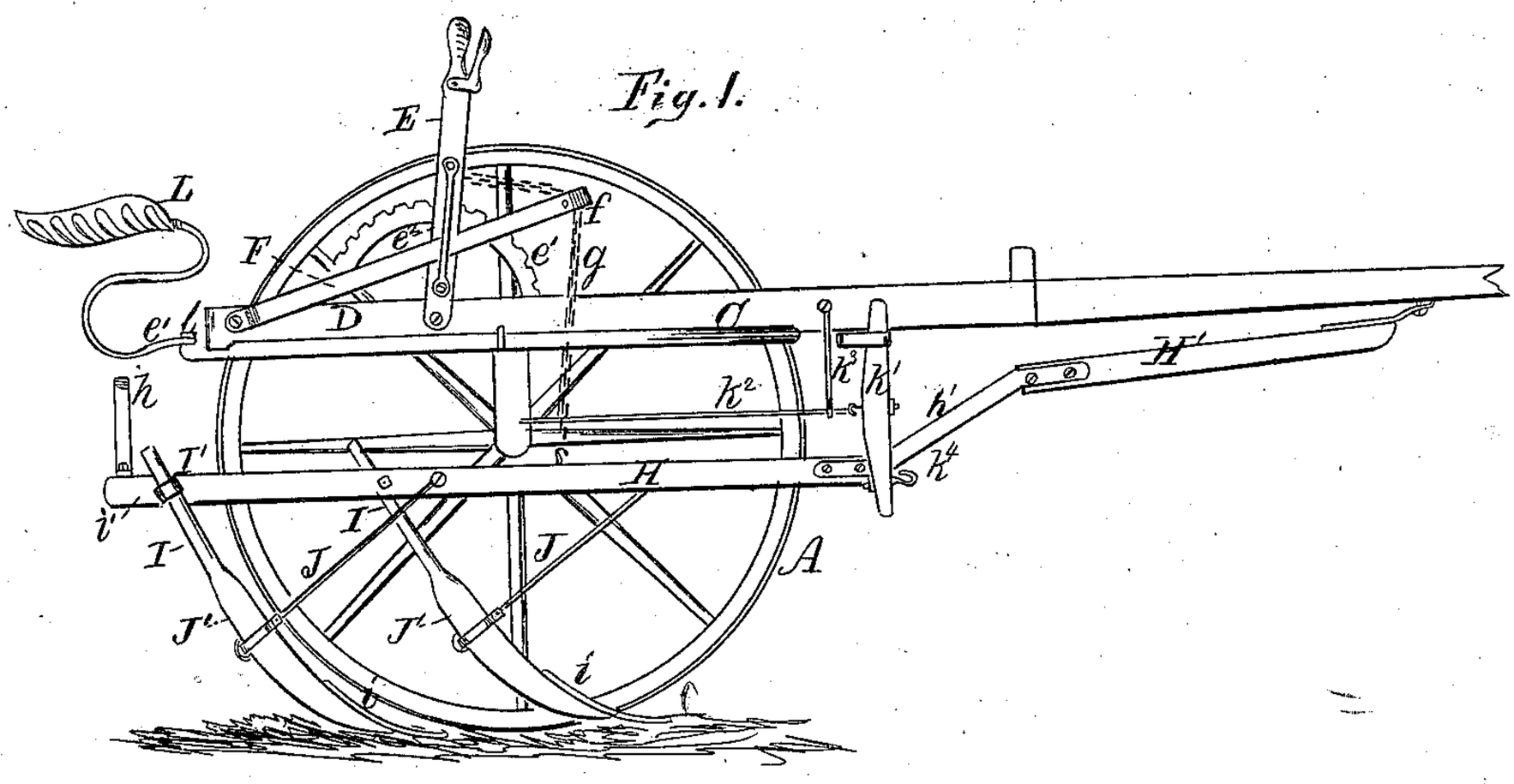
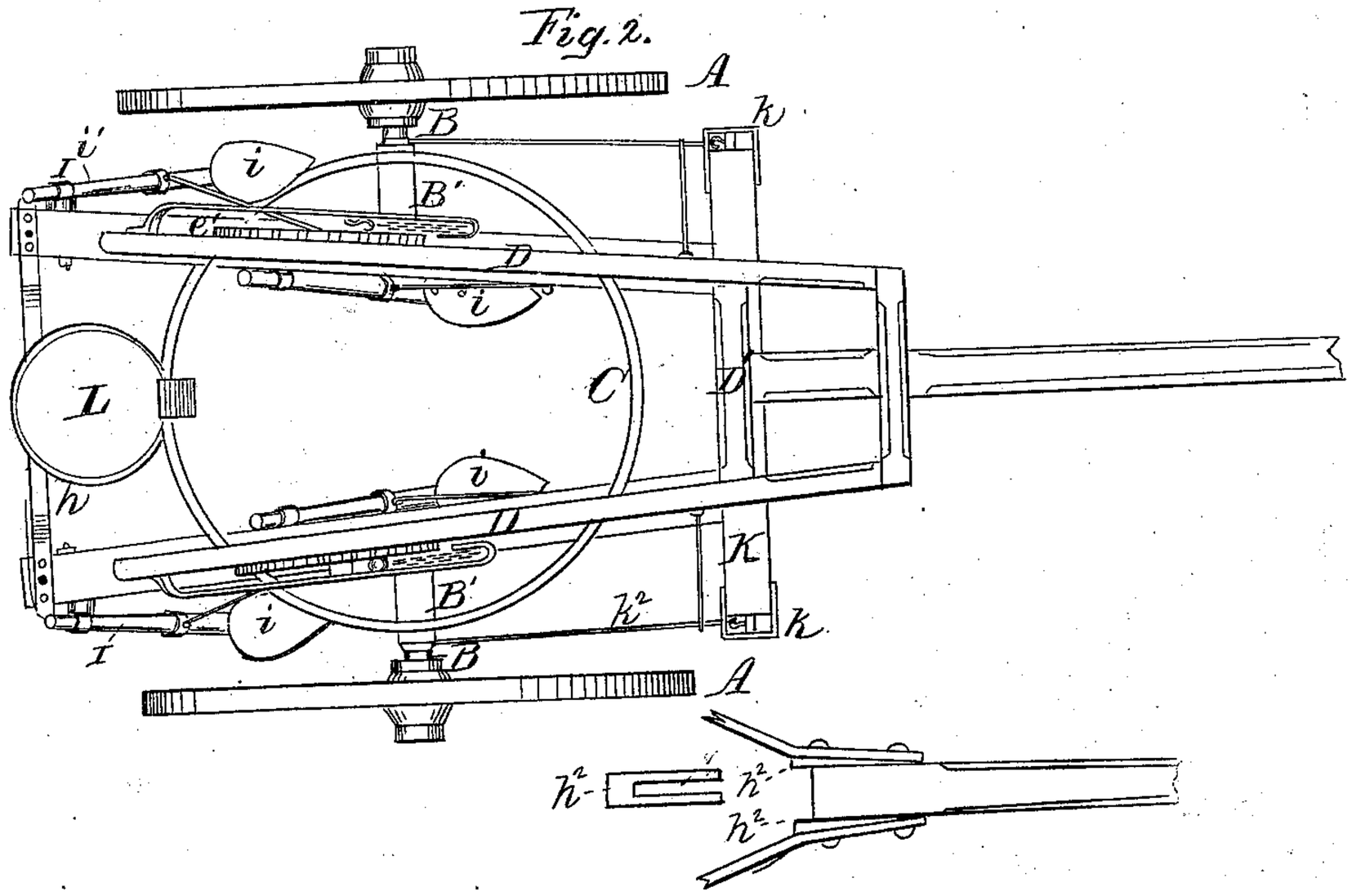


Fig. 2.



Witnesses.
D. S. Miller.
Robt. E. Brewster

Inventor.
H. W. Wattles by
H. W. Beadle atty

United States Patent Office.

HIRAM J. WATTLES, OF ROCKFORD, ILLINOIS.

Letters Patent No. 93,651, *dated August* 10, 1869.

IMPROVEMENT IN CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HIRAM J. WATTLES, of Rockford, in the county of Winnebago, and State of Illinois, have invented a new and useful Improvement in Cultivators; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to cultivators, and consists—

First, in constructing the frame of the machine of a single ring of metal.

Second, in the employment of a bolt and brace of peculiar construction, in connection with the shovel-standards, by means of which the position of the shovels, in relation to the plants to be cultivated, may be readily changed at will.

Third, in the employment of a wedge of peculiar construction, in connection with a perforated beam, by means of which the distance between the shovels is varied at will.

Fourth, in the employment of a pulley-arm, in connection with the ordinary devices for raising the shovels, by means of which the chains are permitted to have a longer swing when working.

Fifth, in a peculiar arrangement of devices for regulating the draughts, the details of which, and also those of the foregoing, will be fully described hereinafter.

In the drawings—

Figure 1 represents a side elevation, and

Figure 2, a plan view of my improved cultivator.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and operation.

A A represent the wheel upon which the machine rests.

B B represent the axles, which are bent upward and inward, to form the supports B′ of the frame C.

This frame is formed of a circular ring of metal, either round or square, (and it may be hollow, if desired,) and is secured to the extensions B′ of the axle B, by means of staples, or other suitable means.

Upon this frame C are placed the beams D, which form supplemental frame-work for holding the tongue and evener, and the devices for lifting the shovels.

E E represent the levers for lifting the shovels. These are provided with the ordinary spring-stops, which are used in connection with the rack-bars e^1.

F F represent arms, which are pivoted at their lower ends to the rear ends of the beams D, as shown.

They are provided at their upper ends with the pulleys *f*, over which pass the chains *g*.

These arms are confined to the sides of the levers E, for the purpose of preventing lateral movement by means of the rods e^2, the arrangement being such, however, as to permit the levers to move without restraint.

H H represent the beams, to which the shovel-standards are attached.

These are united, at their rear ends, by means of the bow-shaped beam *h*, which is perforated at each end to permit adjustment.

These front ends are attached to the bars h^1 h^1, which, bending upward and inward, unite in the beam H′, which latter is attached to the lower side of the pole, in such manner as to permit the rear ends to move vertically.

h^2 h^2 represent slotted wedges, which are inserted between the beam H′ and the bar h^1 h^1. By forcing these wedges more or less in and out, the beams H are separated, or brought nearer together, as may be desired.

I I represent the standards, to which the shovels *i* *i* are attached.

These standards are fastened, at their upper ends, to the beams H, by means of the ring-bolts I′, as shown in fig. 1.

In order that the standards may be rigidly held when in place, I provide a ring, *i*′, which is so constructed, with curved edges to fit the standard, that a perfectly solid bearing is obtained.

J J represent braces, extending from the front ends of the beams H to about the middle of the standards I I.

These braces are not secured directly to the standards, but are connected to the rings J′, which encircle the standards by means of wooden pins. These rings are held in place by means of staples, as shown.

K represents the evener, which is pivoted to the under side of the bar D′.

Its ends are provided with the clevises *k* *k*, in which move the upper ends of the draught-bars k^1 k^1.

These bars are attached, at their centres, to the rods k^2 k^2, which, extending rearward, are attached to the axle-bars, as shown.

k^3 k^3 represent braces, which steady the rods k^2.

Near the lower ends of the bars k^1 are the hooks k^4, to which the single-trees are attached.

L represents the seat, which may be adjusted forward and back by means of the bolt *l*, and holes *l′* *l′*.

The pole may be removed, if desired, by taking out the bolt in the forward end-piece of the frame, where it notches into the pole, the extreme back end of the pole being merely retained in a socket. By this construction, when the cultivator is not in use, the pole can be readily removed, and thus permit the cultivator to be packed away in a small space.

The operation of my machine is as follows:

The shovels are adjusted, in relation to the plants, to throw the dirt to them or from them, by loosening

the bolt I', and turning the standard I, the construction being such that the latter can fully revolve in either direction when the bolt is loosened.

To separate the beams H H, the beam *h* should be unloosed at one or both ends by taking out the bolt, and the wedges h^2 then be driven further in at the forward end. When they are sufficiently separated, the beam *h* should be again secured. To draw them together, the operation is reversed.

Some of the advantages of this machine are as follows:

By the employment of the metal ring for the main frame, the machine is made very light, without being at all weakened, while, at the same time, the rider is enabled to see the ground, without having his view obstructed, as is usual, by the frame-work.

I prefer to construct this frame of gas-pipe, but any suitable material will answer.

The shovels are readily adjusted by loosening a bolt. They are also spread apart or brought together readily and by simple means.

The employment of the pulley-arm, in connection with the levers for lifting the shovels, is an important feature. By this construction a greater length of chain is obtained while the shovels are working, and they consequently swing more freely, and the rider is enabled to avoid striking the standing corn when the rows are crooked.

The draught-devices, while not differing very materially from some others in use, yet have special advantages. The arrangement of the draught-bar is such that it has a limited motion in the clevis on the evener, before it moves the latter. This permits the slight irregularities of the horses to be taken up without moving the evener. The pull, also, is directly upon the axles.

The object desired to be accomplished in this invention is to produce a simple, efficient, and durable machine, adapted to the wants of cultivators.

It is believed that the construction and arrangement herein described will be found, in practice, to accomplish the desired result.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The frame C, when constructed substantially as described, for the purpose set forth.

2. The arms F F, when provided with the pulleys *f f*, and used in connection with the lifting-levers E E, as and for the purpose described.

3. The slotted wedge h^2, when used in combination with the bars *h*, as described, for the purpose set forth.

4. The evener K, having the clevises *k k*, when combined with the draught-bars k^1 k^1, in the manner and for the purpose described.

5. The cultivator described, consisting substantially of the frame C, lifting-devices E E, beams H, standards I, and draught-devices K *k*, when combined and used as and for the purpose described.

This specification signed and witnessed, this 8th day of June, 1869.

HIRAM J. WATTLES.

Witnesses:

G. W. FORD,

E. A. NICHOLS.