

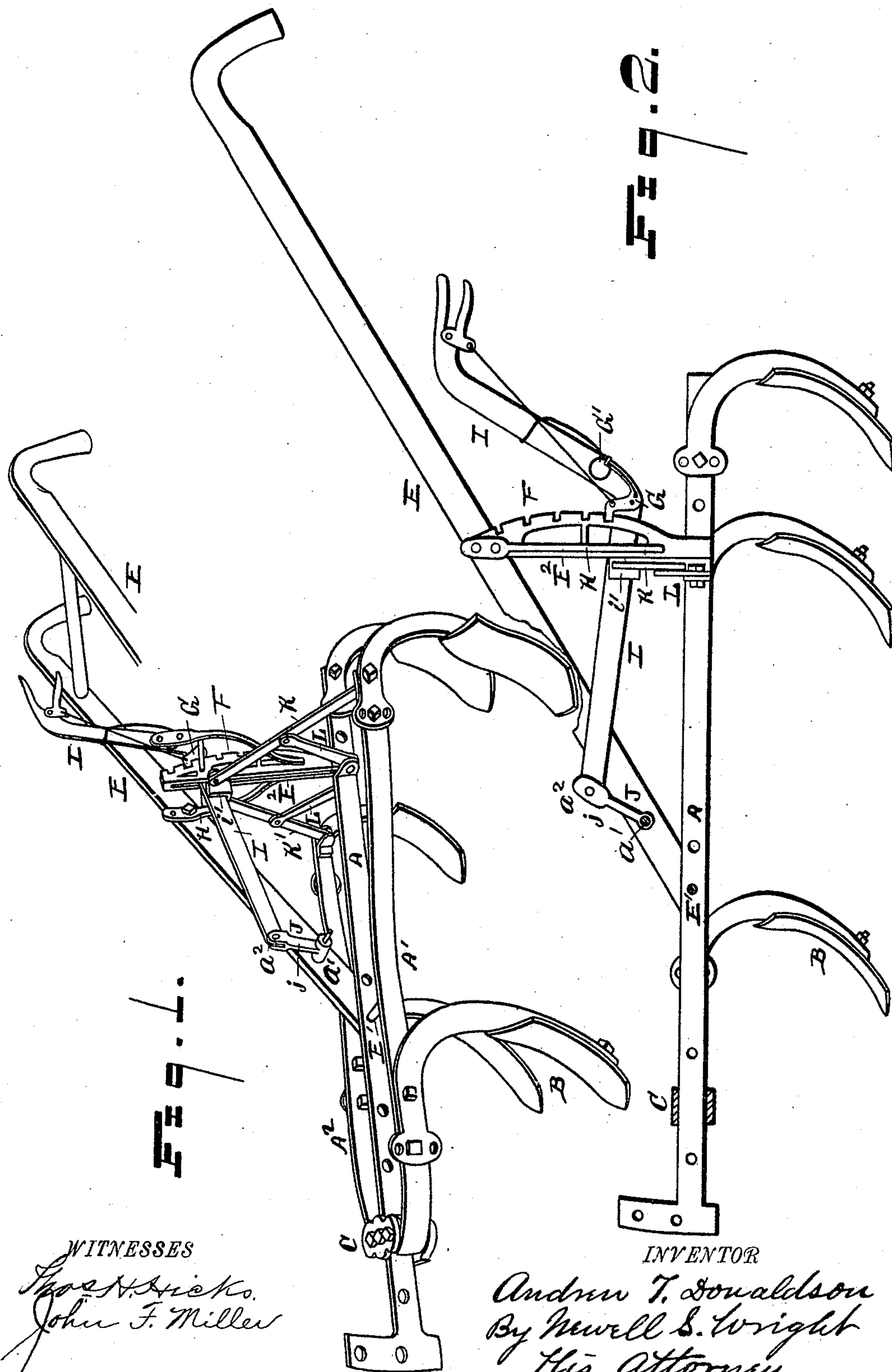
(No Model.)

2 Sheets—Sheet 1.

A. T. DONALDSON.  
CULTIVATOR.

No. 497,369.

Patented May 16, 1893.



*WITNESSES*

Thos. H. Hicks.  
John F. Miller

INVENTOR

Andrew T. Donaldson  
By Newell S. Wright  
His Attorney.

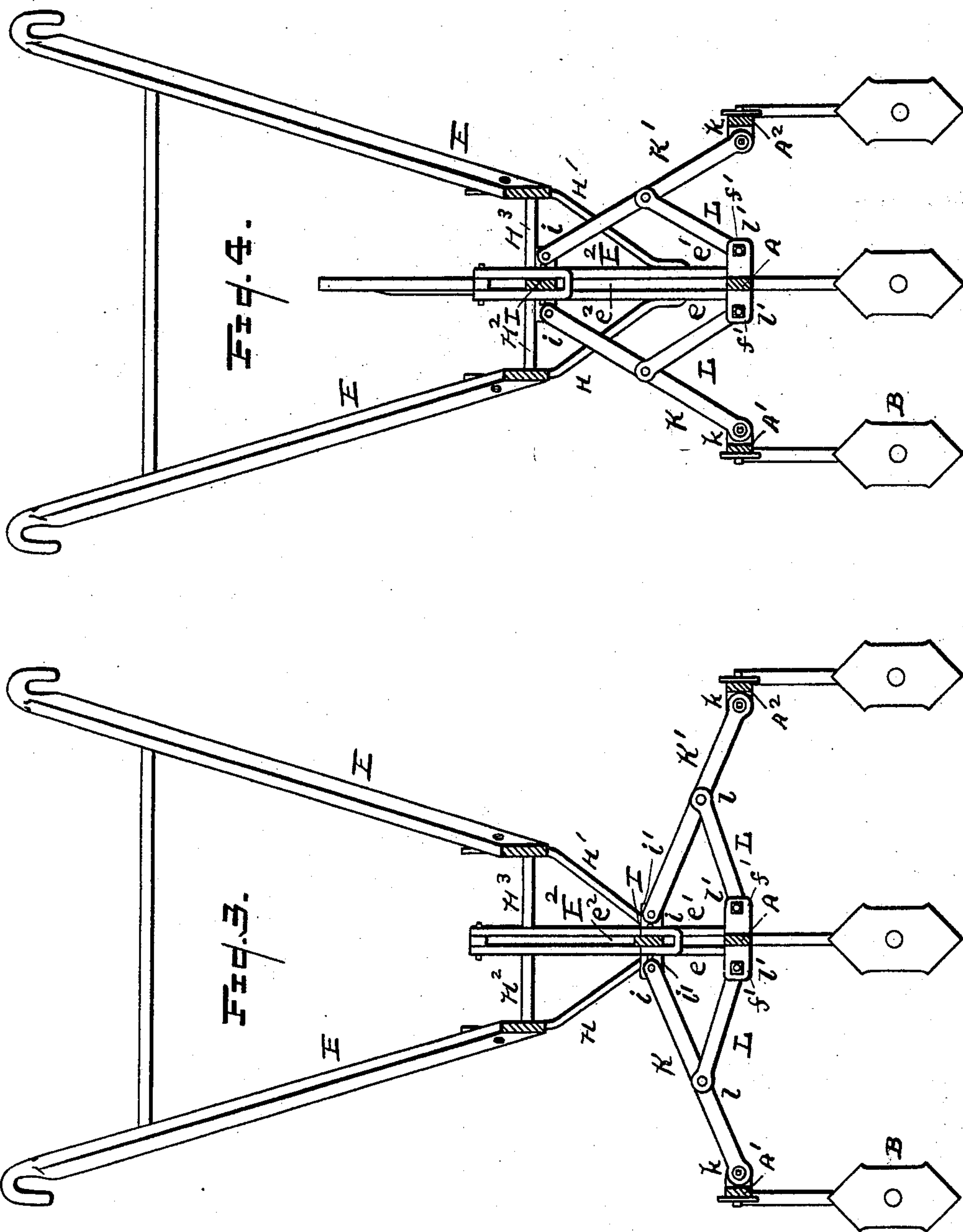
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# UNITED STATES PATENT OFFICE.

ANDREW T. DONALDSON, OF MOUNT CLEMENS, MICHIGAN.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 497,369, dated May 16, 1893.

Application filed November 21, 1892. Serial No. 452,618. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW T. DONALDSON, a citizen of the United States, residing at Mount Clemens, in the county of Macomb, State of Michigan, have invented certain new and useful Improvements in Cultivators; and I 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, which form a part of this specification.

My invention relates to certain new and useful improvements in cultivators, and more particularly to an improved lever cultivator, of superior simplicity, efficiency and durability.

The special object of my invention is to provide an implement of this class whereby the side bars of the cultivator may be spread or contracted, as may be desired, and also whereby the handles shall be firmly braced, the operation of the device being easily, quickly and readily accomplished.

To these ends my invention consists of the devices and appliances, their construction, combination and arrangement as hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective. Fig. 2 is a side elevation, one of the side bars being removed. Fig. 3 is a vertical cross section, showing the tooth bearing bars expanded, and Fig. 4 is a similar view, showing said bars contracted toward the central bar.

I carry out my invention as follows:

In the drawings A represents a central bar, carrying any desired teeth or shovels B, engaged therewith in any desired manner. A' and A<sup>2</sup> represent side bars also carrying teeth or shovels B. The bars A, A' and A<sup>2</sup> are united at their forward ends by a yoke C, with which the side bars A' A<sup>2</sup> have a jointed connection. E E denote the handles firmly engaged at their lower ends with the center bar A, by any suitable means, as by a bolt E'. These parts may be constructed in the usual manner.

Toward the rear end of the center bar A is rigidly engaged therewith an upright standard E<sup>2</sup>. This standard is constructed preferably in two upright parts "e" and "e',"

united at top and bottom to leave an elongated slot "e<sup>2</sup>" therebetween. The standard is provided with a rack bar F. Braces H, H' lead from the standard to the handles. Additional braces H<sup>2</sup>, H<sup>3</sup> are located between the upper end of the standard and the upper portion of the braces H, H', giving much firmness to the construction.

"I" denotes a lever provided with a pawl G, to engage the rack bar F. G' is a spring actuating said pawl. This lever passes through the elongated slot "e<sup>2</sup>," and works vertically therein. The forward end of this lever is jointly engaged with a rock bar J, pivotally engaged in the lower ends of the handles, as at "a" and "a'," and with an upright arm "j," with which the forward end of the lever "I" is jointly connected, as indicated at "a<sup>2</sup>." This construction and arrangement, obviously, allows the rear end of the lever "I" to be raised and lowered by disengaging the pawl from the rack bar, the pawl holding the lever in any desired position.

K and K' denote spread irons, jointly connected with the lever I at their inner ends, as shown at "i," and with the rear extremities of the bars A' A<sup>2</sup> at their outer ends, as shown at "k." To effect the jointed engagement of the spread irons with the lever "I," the latter may be provided with angle irons or ears "i'."

L, L denote braces jointly connected at their outer ends with the spread irons, as shown at "l," their inner ends being also jointly connected at the lower end of the standard, as shown at "l'," the standard being provided, for this purpose, with ears "f'."

From the above description it will be evident that by manipulating the lever "I," the outside bars A' and A<sup>2</sup> may be correspondingly spread or contracted as may be desired. The spread irons, in connection with the braces L L between the outside bars, with the standard E<sup>2</sup>, together with the upper braces between said standard and the handles, afford greater firmness to the handles, and effectually prevents any shaking or loose motion. It will be observed that the action of the operating lever and its connections with the side bars A' and A<sup>2</sup> is in a vertical direction. It will be evident that the lever I has both a vertical and longitudinal movement, since the rock bar J is rotatably connected



with the handles. This method of construction does away with a number of pieces or parts required in analogous constructions, and combines spread irons and handle braces  
5 in a superior manner, forming a construction of superior simplicity and utility.

What I claim as my invention is—

1. The combination with a cultivator provided with a center bar, laterally adjustable  
10 side bars, and handles, of a rock bar J journaled in said handles, an operating lever I jointly engaged with said rock bar toward its forward end, an upright standard E<sup>2</sup>, braces H and H' connecting said standard  
15 with said handles, vertically movable spread irons K and K' connected with the operating lever and side bars, braces L and L' connecting said spread irons to the center bar, and mechanism to hold said lever in given position,  
20 substantially as described.

2. In a cultivator, the combination with a center bar, adjustable side bars, and handles, of an upright standard, braces leading from said standard to said handles, an operating  
25 lever, spread irons leading from said lever to said side bars and having a jointed engagement therewith, braces jointly connected with said spread irons and said standard, and pawl and ratchet mechanism to hold the op-

erating lever in any given position, substantially as described. 30

3. In a cultivator provided with a central tooth bearing bar, adjustable side bars, and handles, an upright standard formed with an elongated slot engaged with the central bar, an  
35 operating lever vertically movable in said slot, braces connecting the standard and handles, spread irons jointly connected with said lever and side bars, braces jointly connected with the central bar and spread irons,  
40 and mechanism to hold the lever in a given position, substantially as described.

4. In a cultivator, the combination with a center bar, laterally adjustable side bars, and handles, of a vertically and longitudinally  
45 movable operating lever, a standard provided with a rack bar, vertically operated spread irons connecting the operating lever side bars and center bar, a pawl engaging said lever and rock bar, and braces connecting the handles  
50 with said standard, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

ANDREW T. DONALDSON.

Witnesses:

N. S. WRIGHT,  
JOHN F. MILLER.