Sept. 4, 1928.

1,683,008

R. AARVIG

CULTIVATOR

Filed Nov. 25, 1922

2 Sheets-Sheet 1

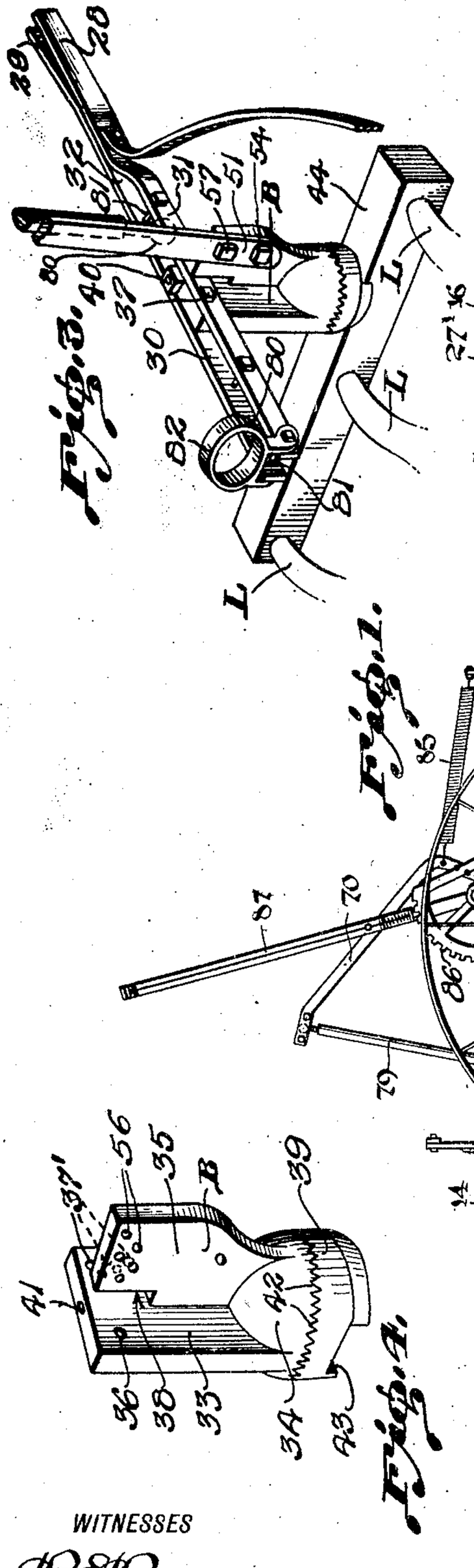

Fig. 3.

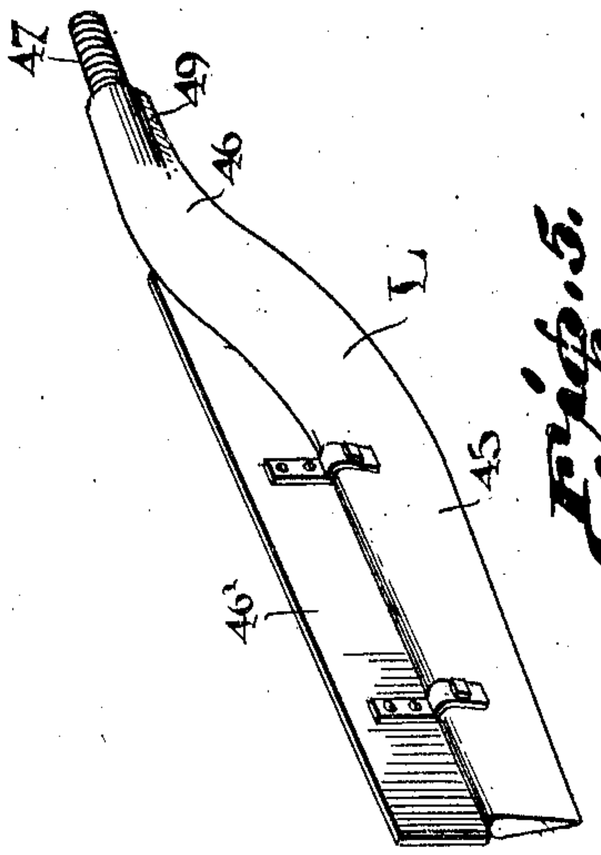

Fig. 5.

Fig. 1.

Fig. 4.

WITNESSES

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2 Sheets-Sheet 2

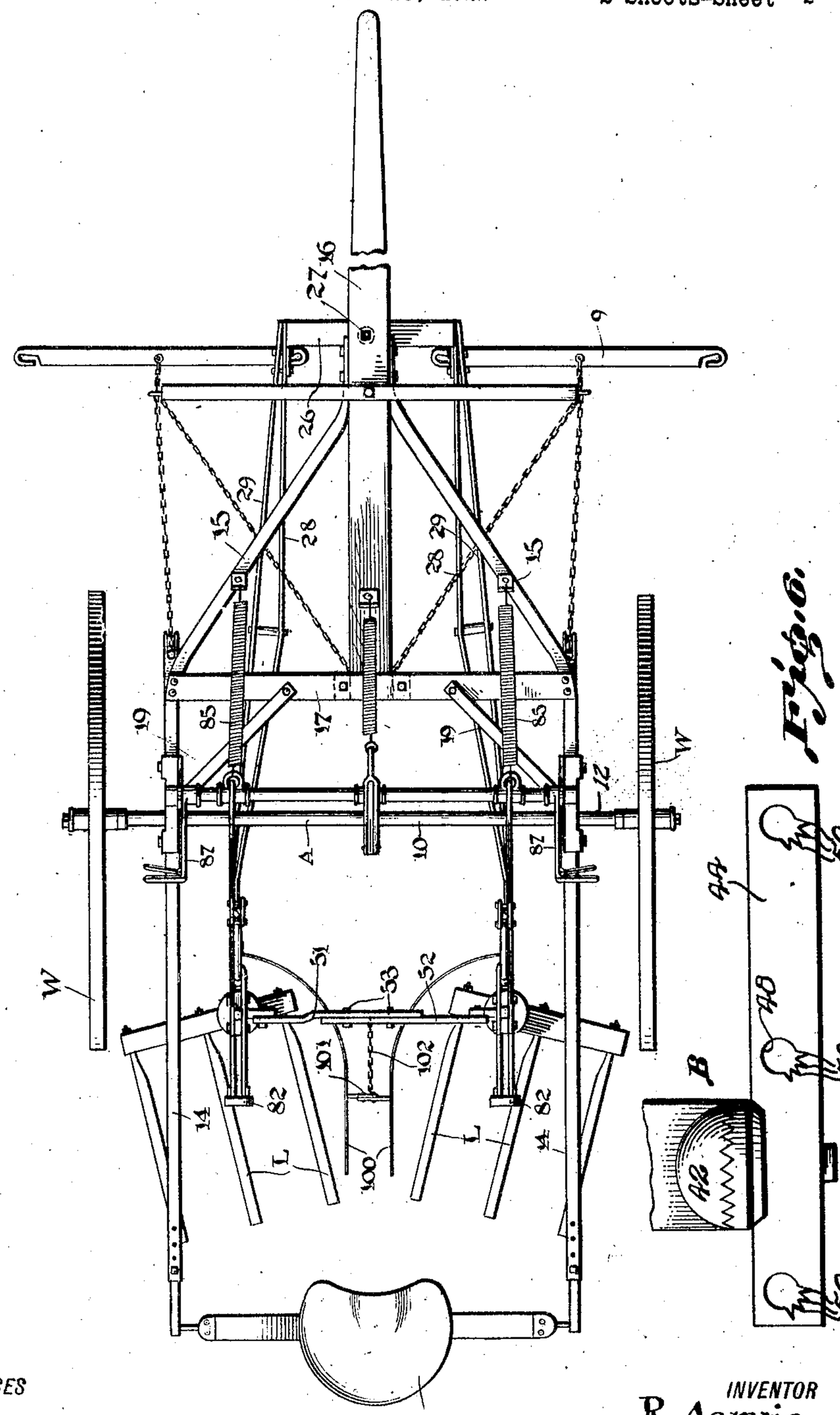

Fig. 2.

Fig. 6.

WITNESSES

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Patented Sept. 4, 1928. 1,683,008

UNITED STATES PATENT OFFICE.

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CULTIVATOR.

Application filed November 25, 1922. Serial No. 603,312.

This invention relates to improvements in cultivators.

The invention more particularly relates to cultivators of the sulky type and especially adapted for cultivating corn or the like. Among the objects of the invention is to provide a cultivator of the character specified which is adapted to efficiently destroy weeds, pulverize the soil; and not clog with weeds or other trash upon the soil over which the same may pass; or be clogged when the soil is wet.

Other objects, and objects relating to details of construction, combination and arrangement of parts will hereinafter appear in the detailed description to follow.

The invention is illustrated by way of example in the accompanying drawings, in which:—

Figure 1 is a view in side elevation of a cultivator constructed in accordance with the present invention.

Figure 2 is a top plan view of the same.

Figure 3 is a fragmentary view showing in perspective and particularly illustrating the manner in which the cultivating elements of the device may be adjusted and controlled.

Figure 4 is a detailed perspective view of the adjusting block employed in connection with the cultivator elements.

Figure 5 is a detailed view of a cultivator element.

Figure 6 is a detailed view illustrating the bar in which the cultivating elements may be adjustably held with relation to the direction of movement to the same.

Like reference numerals refer to like parts throughout the drawings.

Referring to the drawings in detail, A indicates generally an axle which is of the yoke type and comprising the bridge portion 10 and the leg portions 11, each of which terminate in a spindle 12 upon which there is journaled a wheel W. The axle A supports a frame comprising the two side members 14, each of which terminates at its forward end in an inwardly extending portion 15, and said portions 15 having secured between their free ends a tongue 16. Also the members 14 have secured therebetween a cross member 17 to which the rear end of the tongue is secured by the means of a U-shaped clip in the usual manner. Braces 19 may also extend between the members 17 and members 14 to reinforce the frame. Each member 14 may carry a clamp whereby to secure the same to the axle A.

To the tongue 16 there is pivoted a cross member 26, said member being pivoted by means of a bolt 27. The bolt 27 is formed with a rounded head at its lower end adapted to seat in a complemental recess in the cross member 26 and permit a slight tilting movement of member 26. To each end of the member 26 there is pivotally connected the forward end of a beam 29. Each bar 29 has secured thereto a bow-shaped strap or band 28 whereby to reinforce the same. The beams 29 each have connected therewith a cultivator unit, the construction of each unit being the same with the exception that one unit is adapted to operate upon one side of a row of plants, while the other unit is adapted to operate upon the other side.

Each beam 29 is provided adjacent its rear end with an offset portion 30 and the strap 28 with an offset portion 31. Between the offset portions 30 and 31 there is secured the adjusting block generally indicated by the reference character B. The adjusting block B as shown in Figure 4. consists in a body portion 33 which is in the form of a plate and which terminates at its lower end in a hemispherical portion 34. Also the plate is formed with a wing 35 which extends in a plane at right angles to the plane in which the plate is disposed. The plate or body portion 33 is provided adjacent its upper end with an opening 36 through which there may be extended a bolt 37 and thus securing the plate between the bar portions 30 and 31. Also this plate may be provided with openings 37′ through which a pin may be extended, said pin also extending through the bar portions 30 and 31. Two or more of the openings 37′ should be provided in order to permit the block B to be adjustably swung upwardly about the bolt 37 as a center. A recess 38 in the block portion 35 permits such movement of the block with relation to the bar 31.

There is also provided a member 39 which is secured to the block B by the means of a king pin 40, said pin extending through registering openings in the block and the member 39, the opening in the block B preferably ex-

tending through the body or plate portion 33 as at 41, Figure 4. The opposing faces of the block B and the member 39 may be each provided with a rib, and said rib serrated to provide teeth 42 adapted to mesh with each other and hold the same against relative movement and also permit the member 39 to be rotatably adjusted. This particular form of connection or coupling is well known and has not been specifically shown.

The member 39 is provided upon its lower face with a transversely extending groove 43 in which there is disposed a bar 44 and through said bar there extends the pin 40 for securing and holding the same in position. As is obvious by removing the bolt 40 the bar 44 may be turnably adjusted and disposed at any angle desired. The bar 44, in each instance, carries a plurality of blades or scrapers L, the form of which is specifically shown in Figure 5 of the drawings, and as seen consists in a knife-like portion 45 which terminates at its forward end in an upwardly and forwardly curved portion or shank 46 which in turn terminates in a threaded stem 47. The stem 47 is adapted to be inserted into an opening 48 provided in the associated bar 44, and adjacent the stem 47 upon each blade there is provided a bevelled rib 49 which is adapted to fit within one of the notches 50 of its opening 48. As is obvious the blades 45 may be adjustably turned about their longitudinal axis. A nut may be threaded on the stem portion 47 of each blade and thereby hold the same in position. Also each blade may be provided with a fender 46′.

The cultivating units heretofore referred to are tied together by a yoke comprising the two sections 51 which are adjustably secured together by an intermediate section 52 and bolts 53. The sections 51 are L-shaped and the vertical portion of each section has its free end pivotally connected to the wing 35 of the adjusting block B by a bolt as at 54. The wing 35, in each instance, is also provided with a plurality of openings 56 at a point adjacent its upper end, and through the means of a bolt 57 the block B may be adjustably moved about the bolt 54 as a center. The beams 29 will spring sufficiently to permit this limited movement and thereby permit tilting the bars 44 with respect to the horizontal.

A handle 87 operating through a lever 70 and a rod 79, connected by a ball-and-socket joint 80 to the members 30 and 31, serves to raise and lower the bar 44 so as to control the cultivator unit. The same may be locked in adjusted position by a toothed sector 86 engaged by a latch on the handle 87. A toe-clip 82 is provided which is U-shaped in form and has its ends secured to the end of bar 30 and the bar 31 respectively, as shown to advantage in Figure 3.

The bar 70 in each instance is connected to the frame 17 through the means of a coiled spring 85, the coiled springs tending to draw upwardly upon the bars 70.

In the use of the present cultivator, the same is drawn so that the wheels W may straddle a row of corn or the like. The blades L engage the soil and through scraping and shoving action the weeds are cut as said blades pass thereover. It is thought this is entirely obvious from the description heretofore given. If it is desired to move a great amount of the soil toward the row of plants, then the bars 44 holding the blades may be adjusted for this purpose. The bar is before stated may be adjusted through the removal of the bolt 40. In case that it is desired that the blades L travel further from the row of plants then the bolt 57 of each cultivating unit may be removed and the bars 44 adjusted with this in view. The cultivating units are maintained to penetrate the required depth by bar 79, and by engaging lever 87 at the required position in ratchet 86. When lever 87 is disengaged from ratchet 86, the springs 65 will hold the cultivator units to operate at the required depth. Also the operator may use his feet for exerting further pressure upon the cultivator units. In case that it is desired that the cultivator units be rigidly held to penetrate a certain depth then the lever bars 87 are locked in the proper position. Also it may be here mentioned that the yoke 51, 52 may be adjusted in order that the distance between the cultivator units may be adjusted as desired. Furthermore the depth the cultivator blades L may penetrate can be controlled or adjusted by manipulating the block B, that is, by adjustably moving this block upon its pivot bolt 37.

As shown in Figure 2, the cultivator may be equipped with a pair of fenders 100, one being disposed upon the inner side of each cultivator unit. The fenders may be secured together and connected to the yoke by a chain 102. The fenders should be removable as they are not required for cultivating small plants.

While I have shown and described the preferred form of my invention, I wish it to be understood that I am aware of the fact, that the construction, combination and arrangement of parts may be changed by those skilled in the art without departing from the spirit of the invention as indicated by the appended claims.

I claim:—

1. In a cultivator of the character described, a cultivating unit comprising, a carrier having a rearwardly directed socket provided with a series of notches, an elongated blade having a shank extending therealong and fitting said socket and having a rib adapted to selectively engage any of said notches.

2. In a cultivator of the character de-

scribed, a cultivating unit comprising, a carrier having a rearwardly directed socket provided with a series of notches, an elongated blade having a shank extending therealong and adjustable rotatively in said socket, said shank having a rib extending therealong and adapted to selectively engage any of said sockets, and said blade having a lower sharpened edge extending rearwardly from said rib.

3. In a cultivator of the character described, a cultivating unit comprising a head having a series of blades extending rearwardly therefrom along the line of draft, a carrier on which said head is mounted for adjustment about a vertical axis, and a support on which said carrier is mounted for adjustments about axes along and transverse to the line of draft.

4. In a cultivator of the character described, a cultivating unit comprising a carrier having a series of blades extending rearwardly therefrom along the line of draft, a rearwardly extending beam supporting said carrier, and means whereby said beam may be twisted in order to adjust said carrier about an axis along the line of draft.

5. In a cultivator of the character described, a cultivating unit comprising a carrier having a series of blades extending rearwardly therefrom along the line of draft, a rearwardly extending beam supporting said carrier, means for adjusting said carrier on said beam, and means whereby said beam may be twisted in order to adjust said carrier about an axis along the line of draft.

6. In a cultivator of the character described, a cultivating unit comprising a carrier having a series of blades extending rearwardly therefrom along the line of draft, a rearwardly extending beam supporting said carrier, means for adjusting said carrier on said beam, about an axis transverse to the line of draft, and means whereby said beam may be twisted in order to adjust said carrier about an axis along the line of draft.

7. In a cultivator of the character described, a cultivating unit comprising a head having a series of blades extending rearwardly therefrom along the line of draft, a carrier on which said head is mounted for adjustment about a vertical axis, a rearwardly extending beam supporting said carrier, and means whereby said beam may be twisted in order to adjust said carrier about an axis along the line of draft.

8. In a cultivator of the character described, a cultivating unit comprising a head having a series of blades extending rearwardly therefrom along the line of draft, a carrier on which said head is mounted for adjustment about a vertical axis, a rearwardly extending beam supporting said carrier, means for adjusting said carrier on said beam about an axis transverse to the line of draft, and means whereby said beam may be twisted in order to adjust said carrier about an axis along the line of draft.

9. In a cultivator of the character described, a cultivating unit, comprising a plurality of blades, each blade terminating at its forward end in a reduced portion, a bar having a plurality of openings through which the reduced portion of each blade may be extended, a nut carried at the forward end of each blade whereby the same may be rigidly secured to the bar, a rib formed upon the forward end of each blade adapted to engage in a plurality of notches provided in the associated opening of the bar and thereby to permit the blades to be adjustably rotated upon their longitudinal axis.

10. In a cultivator of the character described, a cultivating unit, comprising a plurality of blades arranged in parallel relation, and each blade having a cutting edge extending the entire length thereof, and a strip detachably secured to the other end of the blade to serve as a fender.

11. In a cultivator of the character described, including in combination, a supporting frame, a bar connected at its one end to said frame for substantially universal movement, a cultivator unit carried by said bar comprising a plurality of blades extending in parallel relation, a bar rigidly connecting the forward ends of said blades, means for rigidly connecting the last named bar to the other end of the first named bar carried by said frame, and means whereby the bar connecting said blades may be rotated upon an axis transverse to its longitudinal axis and thereby to adjust the angle of the blades with relation to the direction of movement thereof.

RASMUS AARVIG.