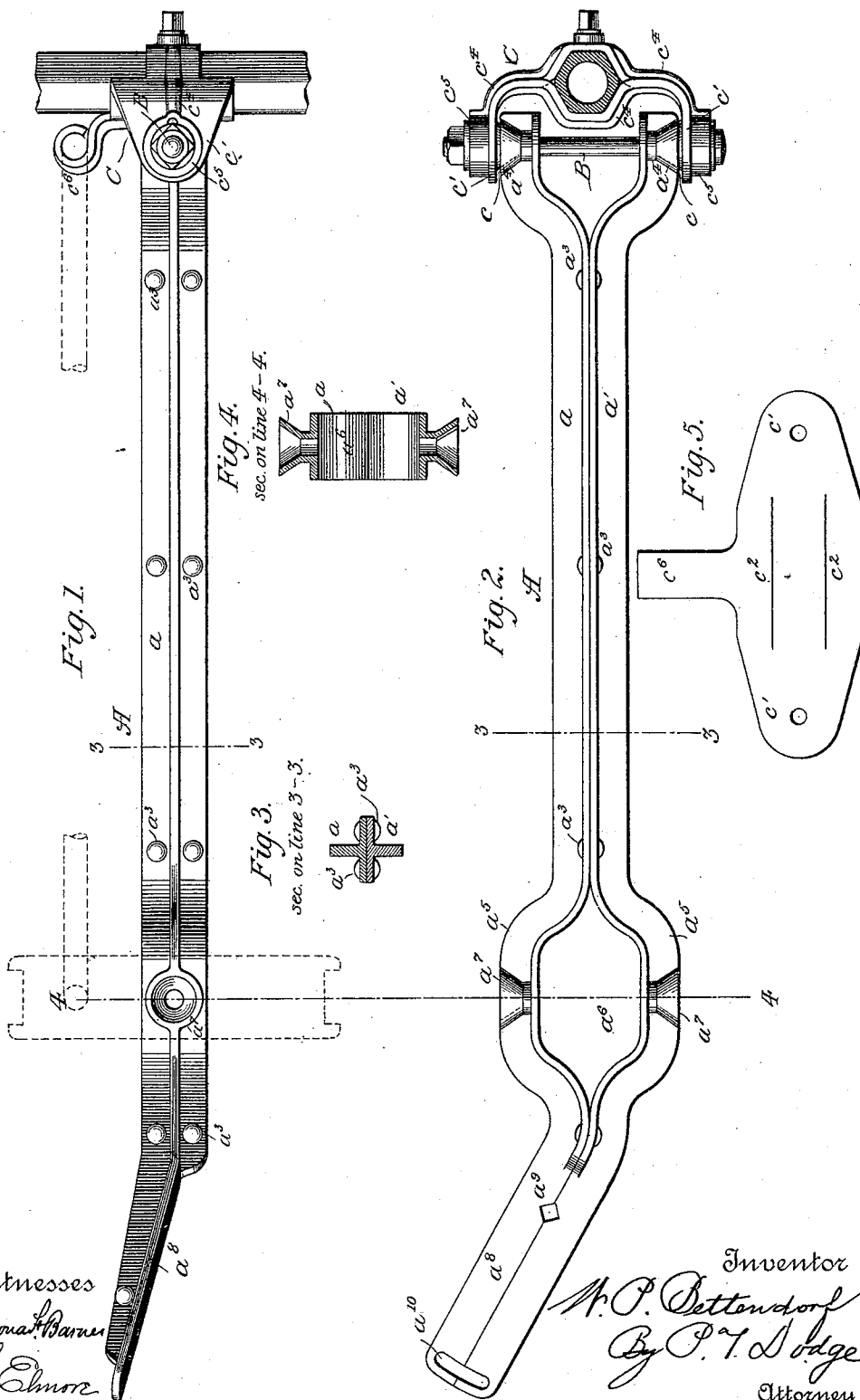


(No Model.)

W. P. BETTENDORF.
CULTIVATOR.

No. 466,217.

Patented Dec. 29, 1891.



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UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF DAVENPORT, IOWA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 466,217, dated December 29, 1891.

Application filed August 5, 1891. Serial No. 401,757. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Improvement in Cultivators, of which the following is a specification.

At the present day there are in general use cultivators of various kinds with and without wheels, which contain longitudinal drag bars or beams carrying shovels at their rear ends and so jointed to the frame at their front ends that the rear shovel-carrying ends may swing vertically and laterally. Heretofore these beams have been constructed of wood, of metal tubes, and of metal bars variously shaped and united, the beams formed of bars being in each case composed of numerous pieces of an expensive character.

Now it is the aim of my invention to construct a metallic beam and a draft-head therefor in such manner that it shall be at once light, strong, and cheap. To this end I construct the entire beam of two bars of angle-iron, formed and united substantially as hereinafter described, and I construct the coupling or draft head of a plate of wrought metal formed and bent into shape, as hereinafter explained.

In the accompanying drawings, Figure 1 represents a top plan view of a cultivator-beam and coupling constructed in accordance with my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a cross-section of the beam on the line 3 3 of Figs. 1 and 2. Fig. 4 is a cross-section of the same on the line 4 4 of Figs. 1 and 2. Fig. 5 is a view of the blank from which the coupling is formed.

Referring to the drawings, A represents the beam composed of the two longitudinal members a and a' , one overlying the other. These members are formed from commercial angle iron or steel, of T form in cross-section. I adopt this metal not only because of its advantageous form, but because it is sold in the market as an article of commerce and is always obtainable at reasonable prices, thus avoiding the necessity of special rolls or tools for its production. The one member is arranged with its longitudinal rib on the upper side, the other with the rib on the under side, and their wide flat faces are brought together

and firmly united by rivets a^3 . Before the parts are united their forward ends are bent upward and downward, respectively, as shown in Fig. 2, so that the beam presents at the forward end a forked shape, that it may receive the vertical pivot-pin B, by which it is secured within the forked draft-head or coupling C. The forward extremities of the two members are by suitable dies or formers upset and fashioned into conical sockets a^4 , designed to receive the conical centers or lugs c on the coupling-head, in order that a close joint may be maintained and that the pivot-bolt may be relieved to an extent from strain. Near their rear ends the two members are each given an upward bend or curvature a^5 , in order to leave between them—that is to say, through the beam—an opening a^6 , designed to admit a transverse cross-head or saddle to carry the shovel-standard, as in other beams at present in use. These bent portions a^5 are also upset and fashioned into sockets a^7 , of conical or other suitable shape, adapted to receive the pivots or centers of the cross-head or yoke before mentioned.

In order to adapt the rear end of the beam for the reception of a controlling or steering handle to be manipulated by the attendant walking behind the machine, I bend the rear ends of the two members upward, as shown in Fig. 2, and shear away their horizontal flanges on one side, so that this extended up-turned portion presents a flat vertical face on one side. This extended portion a^8 I provide with a pivot-hole a^9 and also with a slot a^{10} to receive the bolts by which the handle will be attached, as in the case of other beams.

From the foregoing it will be seen that my beam consists of the two parts, that it is extremely light and neat in appearance, and that the form and disposition of its flanges are such as to give it great strength and rigidity in the directions in which it is strained in action.

The coupling-head or yoke C is required to present a forked shape to embrace the end of the beam, and is also required to present an opening for the passage of the supporting-axle E horizontally therethrough. I construct this coupling from a flat blank of the shape shown in Fig. 5, having perforated

ends c' , which are bent over into horizontal positions in order to form the arms or ears to receive the vertical pivot. The middle portion of the plate is provided with two parallel incisions c^2 , and after being incised the portion between the incisions is bent backward horizontally in one direction, while the portion on the outside of the slots is pressed forward in the opposite direction, thus forming through the coupling an opening for the passage of the axle between the forwardly and the backwardly bent portions, as shown in Figs. 1 and 2.

In order to give increased rigidity to the coupling and prevent it from being bent out of shape, I prefer to press up the vertical corrugations c^4 therein; but it is to be understood that these are not necessary features.

In order to adapt the ends or ears of the coupling to receive the conical beam-pivots c , before referred to, and to hold the same firmly in position, I press up the ends in a suitable die, so as to form vertical annular flanges or sockets c^5 , through which the centers may be passed, as plainly shown.

When the beam is used in connection with the transverse pivoted cross-head at the rear to carry the shovels, it is customary to keep the cross-head parallel with the front axle by means of a so-called "parallel rod," a rod lying parallel with the beam, being jointed at the front end to the coupling and at its rear end to the cross-head, as indicated by dotted lines in Fig. 1. When this rod is used, I form the blank for the coupling with an outreaching arm c^6 , as shown in Fig. 5, which is curled at its end into the form of an eye, as shown in Fig. 1, and, if preferred, corrugated longitudinally to give it increased rigidity.

The essence of my invention resides in constructing the beam of two longitudinal angle-bars, and it is manifest that they may be modified in form at the front and rear ends and also modified to an extent in cross-section to adapt them to the special couplings and cross-head with which they are to be employed—that is to say, the front end of the beam, the expanded rear portion of the same, and the sockets therein will be varied in shape, as the ordinary skill of the mechanic will suggest, to

adapt them to the parts with which the beam is to be used.

Having thus described my invention, what I claim is—

1. A cultivator-beam consisting of two longitudinally-connected angle-bars bent apart at their front and rear ends for connection with the coupling and the cross-head, respectively, and provided at each of said points with vertical pivot-openings.

2. A cultivator-beam consisting of two longitudinal metal bars bent apart at the forward ends to give the beam a forked shape.

3. A cultivator-beam consisting of two longitudinal closely-connected metal bars bent or spread apart vertically near their rear ends and provided through the bent portions with vertical openings to admit pivot-pins.

4. A cultivator-beam consisting of two longitudinal metal bars of T-section, having their rear ends bent upward and deprived of the flange on one side, substantially as shown, whereby the beam is adapted to receive a handle.

5. The beam consisting of the two connected angle-bars separated at the front and near the rear and having the enlarged seats or sockets formed integral therewith.

6. The coupling-head for a cultivator, consisting of a sheet-metal plate having its middle incised and bent in reverse directions to admit the axle and having its ends bent over to receive the end of the beam.

7. The sheet-metal coupling having the parallel arms or ears, the transverse opening for the axle, and the stiffening ribs or corrugations.

8. The sheet-metal cultivator-couplings made in one piece and having the bent ends to receive the pivot-pin, the side arm to receive the parallel rod, and the oppositely-bent central portions to encircle the axle.

In testimony whereof I hereunto set my hand, this 29th day of June, 1891, in the presence of two attesting witnesses.

WILLIAM P. BETTENDORF.

Witnesses:

THOS. B. CARSON,
EARLE CLARK.