

(No Model.)

G. W. FRENCH & E. EINFELDT.
CULTIVATOR.

No. 509,027.

Patented Nov. 21, 1893.

Fig. 1.

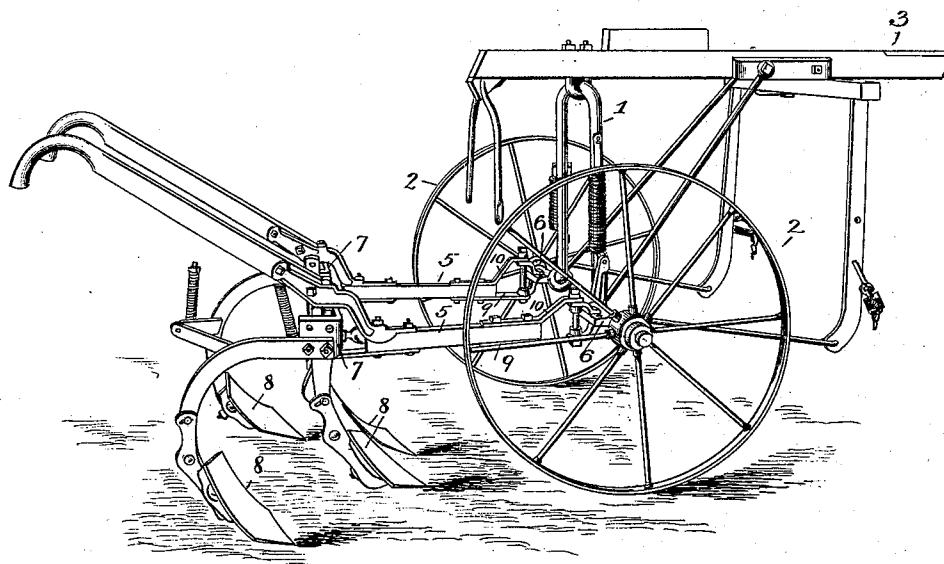


Fig. 2.

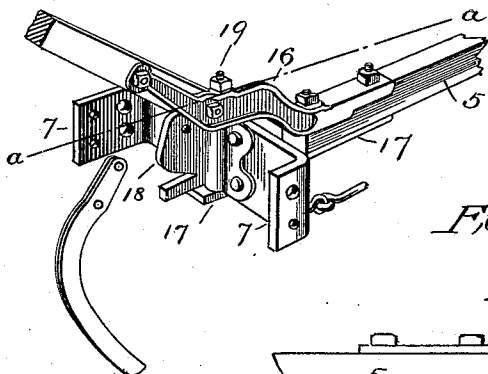


Fig. 3.

ON LINE G-G.

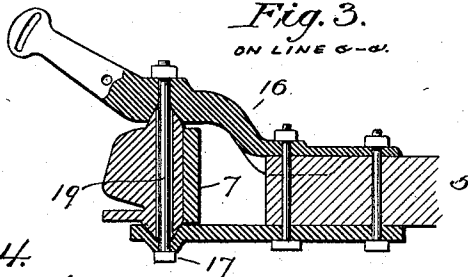


Fig. 4.

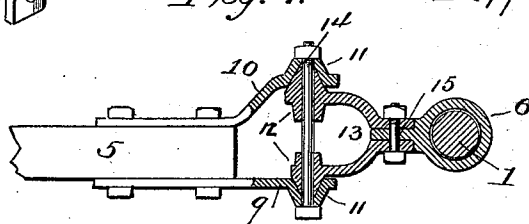


Fig. 5.

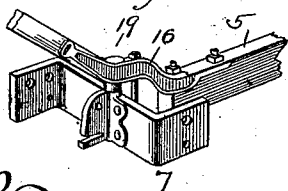
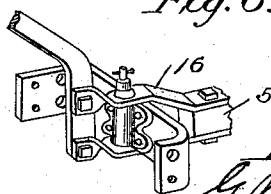


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE WATSON FRENCH AND EMIL EINFELDT, OF DAVENPORT, IOWA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 509,027, dated November 21, 1893.

Application filed March 17, 1893. Serial No. 466,503. (No model.)

To all whom it may concern:

Be it known that we, GEORGE WATSON FRENCH and EMIL EINFELDT, 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.

Our invention relates to cultivators, and more particularly to wheeled cultivators in which the beams are pivoted at their forward ends to swing laterally and are provided at their rear ends with cross-heads movable around vertical axes, the cross-heads being provided with shovel standards having shovels fixed to their lower ends.

Our invention consists in various improvements in machines of this character relating more particularly to the form and construction of the cross-heads, the manner of sustaining the same, the means for the attachment of the shovel standards, the manner of jointing the forward ends of the beams, and to various other details.

The invention also consists in the details of construction and combination of parts hereinafter described and claimed.

In the accompanying drawings,—Figure 1, is a perspective view of the cultivator having our invention embodied therein. Fig. 2, is a perspective view of the rear portion of one of the beams on an enlarged scale,—the side shovel standards being removed. Fig. 3, is a longitudinal section on the line *a-a* of Fig. 2. Fig. 4, is a longitudinal section through the front portion of the beam and the adjacent parts. Figs. 5 and 6 are views of modifications.

Referring to the drawings, 1, represents an arched axle provided at its ends with horizontal spindles adapted to receive ground wheels 2.

3 represents a tongue which is attached to the arched portion of the axle and which is provided with draft devices for the attachment of the team.

5 represents two beams which are pivoted at their forward ends on vertical axes to pipe boxes 6, loosely encircling the horizontal ends of the axle, the rear ends of the beams sustaining cross-heads 7, mounted on vertical axes and carrying shovel standards 8. The beams are each provided at their forward

ends with a horizontal metal strap 9, bolted to the under side and with a metallic strap 10, bolted to the upper side, the ends of the straps being formed in their inner sides with conical perforated sockets 11, adapted to fit over perforated conical lugs 12, projecting upwardly and downwardly from the ends of two brackets, 13, the parts being secured together by a vertical bolt 14, extending through the ends of the straps and brackets. Under this construction it will be seen that each of the beams is mounted to turn on a vertical axis so that it may be swung horizontally at its rear end as usual in machines of this character. By means of the vertical bolt the conical bearing surfaces may be drawn together to compensate for the wear between them. The brackets 13 are seated on the upper and under sides of a horizontal flange 15, extending rearwardly from the pipe box and are secured to the flange by vertical bolts extending through the brackets. Each flange is provided at intervals with bolt holes so that by moving the bolt from one hole to the other the distance between the beams may be varied as circumstances may demand. At their rear end each beam is provided on its upper side with a metallic strap or bracket 16 which has formed in its under side a conical perforated socket and the end of which is extended in the form of an arm to receive a handle. On its under side the beam is provided with a horizontal metallic strap 17, formed with a conical socket similar to the upper bracket, the sockets being adapted to receive conical lugs projecting from a plate 18, bolted to the rear face of the cross-head. The parts are held together by means of a vertical bolt 19 extending through the bearings and acting in a manner similar to that at the forward end of the beam to compensate for wear of the bearings.

The cross-heads are preferably formed from a steel plate the ends of which are bent at right angles to afford surfaces for the attachment of the shovel standards. These standards are secured to the laterally bent ends of a cross-head by means of two bolts, one being of a diameter greater than the other, the smaller one serving as a break pin to permit the standard to yield in the event of an obstruction being encountered.

Where standards are employed formed of a horizontally and rearwardly extending bar, two series of bolt holes may be formed in the laterally bent end of the cross-head thus providing for the vertical adjustment of the shovel.

In certain cases we propose to provide for the attachment of a third shovel standard which is bolted to a rearwardly extending vertical flange formed on the plate 18. This flange is provided near its upper end with a perforation and near its lower end with an open slot, the standard being secured by a bolt at its upper end acting by friction to hold the same in position, the open slot being adapted to receive a second bolt passing through the standard. In the event of an obstruction being encountered the open slot will admit of the yielding of the standard. This third standard we prefer to form from a single piece of metal bent upon itself so that its ends may be applied to opposite sides of the vertical flange.

As shown in Fig. 5 the ends of the cross-head may extend in opposite directions at right angles to the body portion and the vertical bolt for taking up wear between the parts may be applied in advance of the cross-head.

In Fig. 6 we have shown the handle connected to extensions formed on both the upper and lower straps between which the cross-head is mounted.

The formation of the cross-head from a single piece steel plate with its ends bent to receive the standards we deem of great advantage in that we are enabled to produce a light and strong cross-head which will withstand without breakage the severe and violent strains to which they will in practice be subjected.

It is to be noted that the manner of sustaining the cross-heads and of connecting the forward ends of the beams is of extreme simplicity. At the same time the parts all being composed of metal they are rendered strong and as a result of the connection by the vertical bolt as described we are enabled to compensate for any wear that may take place between the parts.

Having thus described our invention, we claim—

1. The combination with the beam provided with independent metallic straps secured re-

spectively to the upper and lower sides thereof, and projecting beyond the same and formed with bearing surfaces, of the cross-head mounted between said straps and having bearing surfaces, adapted to those of the straps and the bolt passing through said plates and cross bar to secure the parts together and to take up wear.

2. In a cultivator the combination with the beam, of independent metallic straps secured to its upper and under sides and provided with perforated conical sockets, the cross-head provided with perforated conical lugs seated in said sockets and the clamping bolt uniting said part whereby the straps are adapted to be drawn together and the joint tightened.

3. In a cultivator a cross-head formed to receive the shovel standards in combination with a plate secured to its rear face and provided with bearing surfaces adapted to enter sockets formed on the beam plates.

4. The combination with the beam of the cross-head having a vertical flange provided with an opening and an open slot, a shovel standard applied to said flange and connecting bolts extending through the shovel standard and the opening and slot in the flange.

5. In a cultivator the combination with the axle and the pipe box provided with the rearwardly extending flange, of the two brackets bolted to said flange and provided with outwardly projecting bearing lugs, the beam, and the straps secured to the end thereof and provided on the inner faces with sockets to receive and hold the bearings of the brackets, the whole forming a coupling between the beam and axle.

6. The combination with the pipe box provided with the rearwardly extending flange, the two brackets seated upon and secured to said flange on opposite sides and provided with the upper and lower conical lugs, the beam, and the straps secured thereto and having conical perforated sockets to fit said lugs, and the through bolt uniting said parts.

In testimony whereof we hereunto set our hands, this 4th day of February, 1893, in the presence of two attesting witnesses.

GEORGE WATSON FRENCH.

EMIL EINFELDT.

Witnesses:

NATH FRENCH,

MAY L. DODGE.