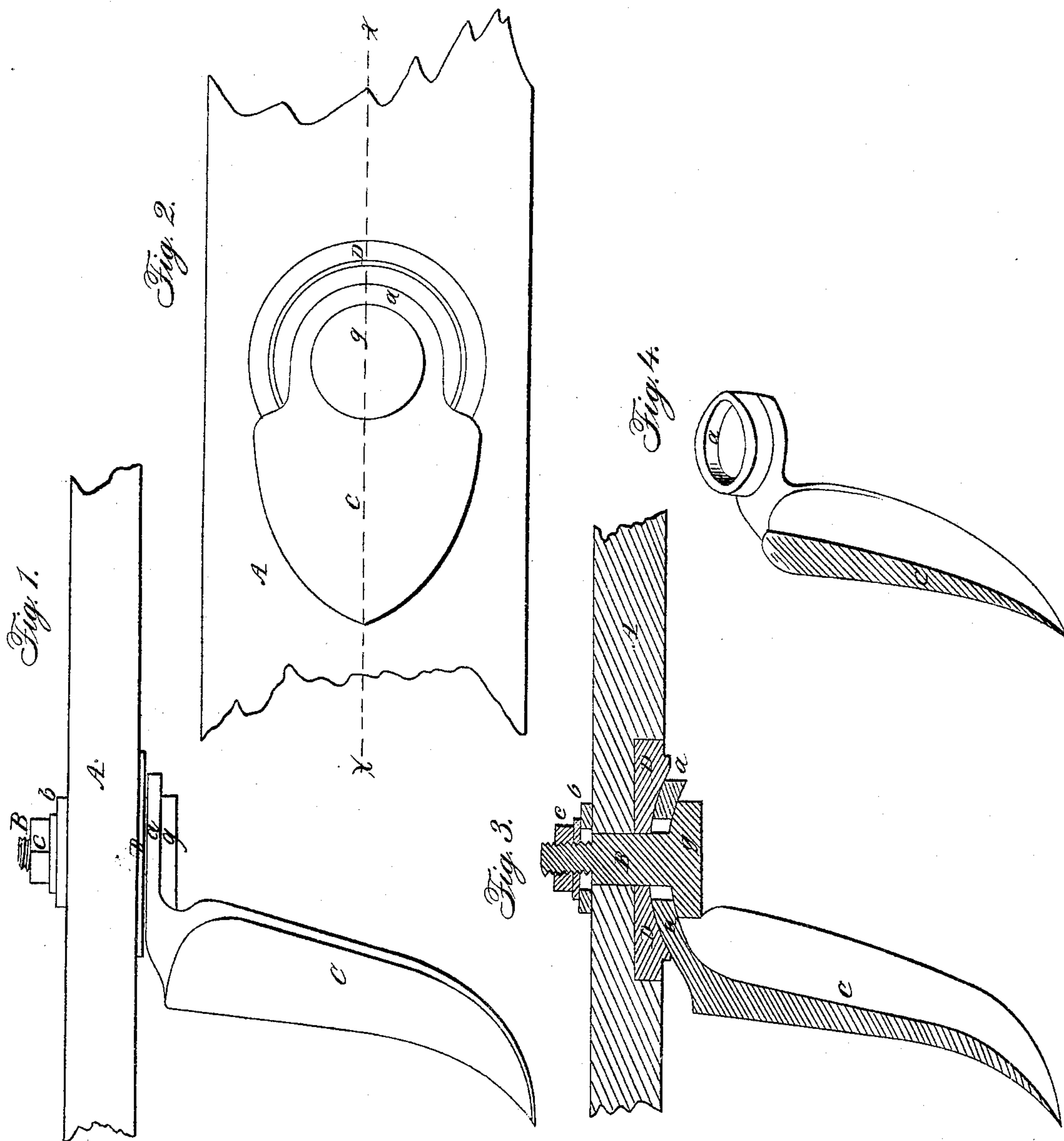


G. W. ZEIGLER.
Cultivator-Teeth.

No. 58,533.

Patented Oct. 2, 1866.



Witnesses:

Edw. Schaefer
Henry J. Weston

Inventor:

Geo. W. Zeigler
by his att
Mason Fenwick Klamm

UNITED STATES PATENT OFFICE.

GEORGE W. ZEIGLER, OF TIFFIN, OHIO.

IMPROVEMENT IN MODES OF ATTACHING CULTIVATOR-TEETH TO THE FRAMES.

Specification forming part of Letters Patent No. 58,533, dated October 2, 1896.

To all whom it may concern:

Be it known that I, GEORGE W. ZEIGLER, of Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Mode of Attaching Shovels of Cultivators to their Frames; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of a shovel attached in the improved manner to a portion of a frame-beam. Fig. 2 is a bottom view of the same. Fig. 3 is a longitudinal section, taken in the vertical plane indicated by red line *xx*, Fig. 2. Fig. 4 is a perspective view of the shovel with its eye-shank.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improved mode of attaching shovels or shovel-teeth to the frames of cultivators, whereby the shovels can be adjusted and secured rigidly at any desired angle with respect to their frame without removing the shovels from their frame, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A represents a portion of the frame of a cultivator, which may be either the cross-beam or the central beam.

C represents a shovel, which may be made of any suitable size, and of any of the well-known forms for cultivating young plants. The upper portion or shank of this shovel has a circular portion, *a*, formed on it, the upper face of which is convex, as shown in Fig. 3, and the lower face is concave. This concavo-convex shank has a hole vertically through its center, which hole is somewhat greater in diameter than the diameter of the bolt B, that passes vertically through it.

At an appropriate point on the bottom of the beam A for attaching the shovel C, I insert a plate, D, and secure this plate firmly in place, so that it shall not be moved out of its place.

The bottom surface of plate D is concave, and adapted for receiving snugly the corresponding convex surface of the shank *a* of the shovel, as shown in Fig. 3. Through the center of the plate D a hole is made, which receives tightly through it the shank of the bolt B, which bolt passes up through the beam A, and receives upon its upper end a washer, *b*, and nut *c*, by means of which latter the shovel is secured rigidly in any desired position.

The bolt B has a large circular head, *g*, formed on its lower end, which is of greater diameter than the hole through the concavo-convex shank *a* of the shovel. The upper face of the bolt-head *g* is made convex, to fit the corresponding concavity in the bottom face of said shovel-shank.

The impinging surfaces of the bolt-head, shovel-shank, and fixed plate D being made of the proper size, and the nut *c* firmly screwed down, it will be seen that the shovel will be immovably secured to the beam A. Then, by loosening the nut *c*, it will be seen that the shank *a* can slide freely either to the right or left hand, or either backward or forward, so that the shovel can be inclined in any desired direction from a vertical line, or turned about the axis of the bolt B either toward the right or left, as may be required, in either of which positions the shovel can be secured rigidly to the beam A by means of the nut *c*.

As my invention is applicable to all varieties of agricultural implements wherein shovels or teeth are used that require adjusting, I do not contemplate confining it to any definite form of cultivator. For this reason I have not illustrated in the drawings a full machine, but merely represented one form of shovel applied to a portion of a beam.

If desirable a perfectly flat-headed bolt may be used; but in this case a washer having a convex surface will be required, in order to admit of the universal movement of the joint.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Securing a shovel or cultivator-tooth to

its frame by means of a universal joint in such manner that the shovel can be inclined either laterally or longitudinally with respect to its frame, substantially as described.

2. The concavo-convex shank *a*, formed on or secured to a shovel or tooth, substantially as and for the purposes described.

3. The combination of the shank *a*, con-

cave plate *D*, convex bolt-head *g*, nut *c*, and a shovel, *C*, or its equivalent, substantially as described.

GEORGE W. ZEIGLER.

Witnesses:

D. J. GOODSSELL,

M. MARTIN.