

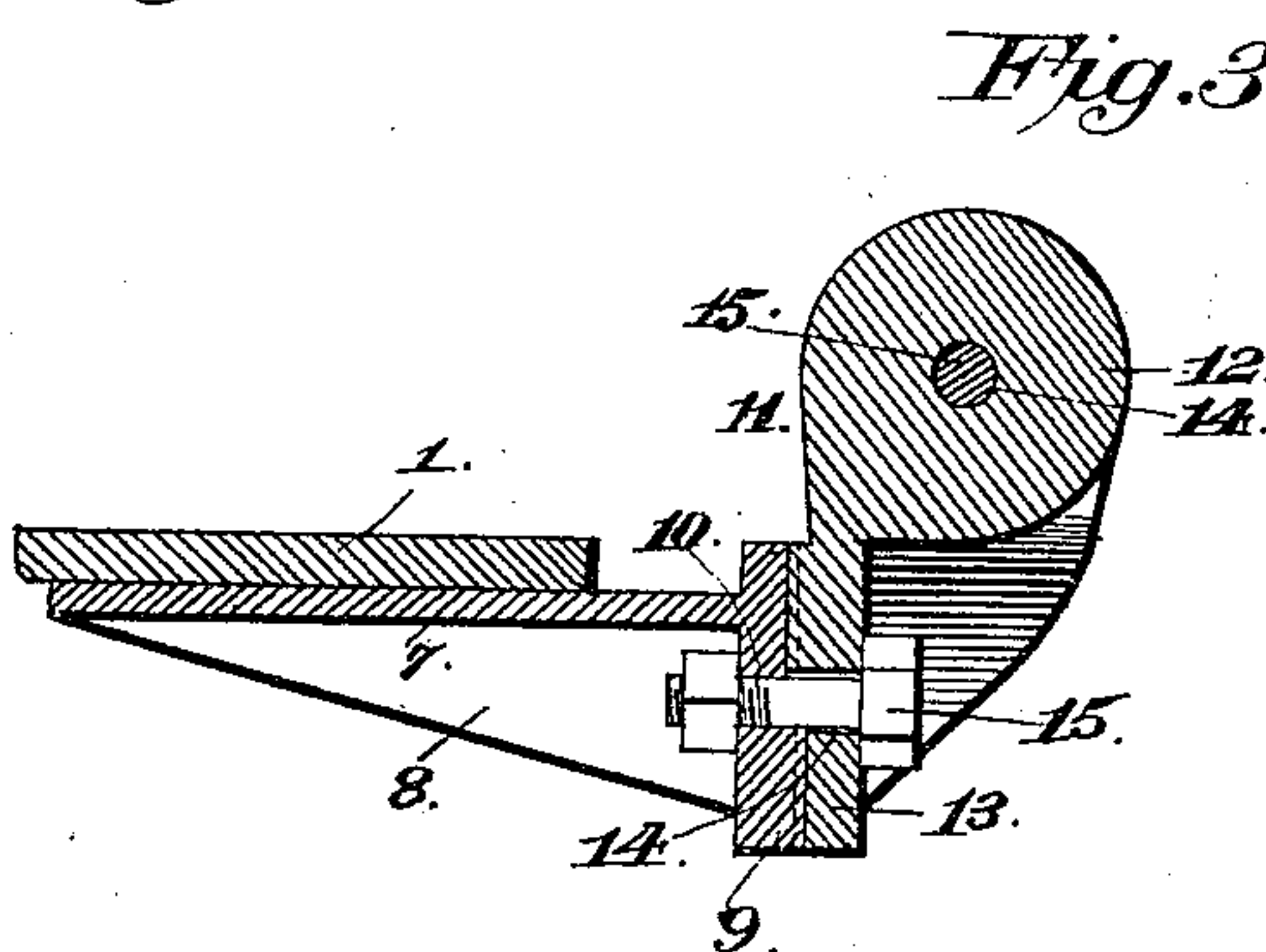
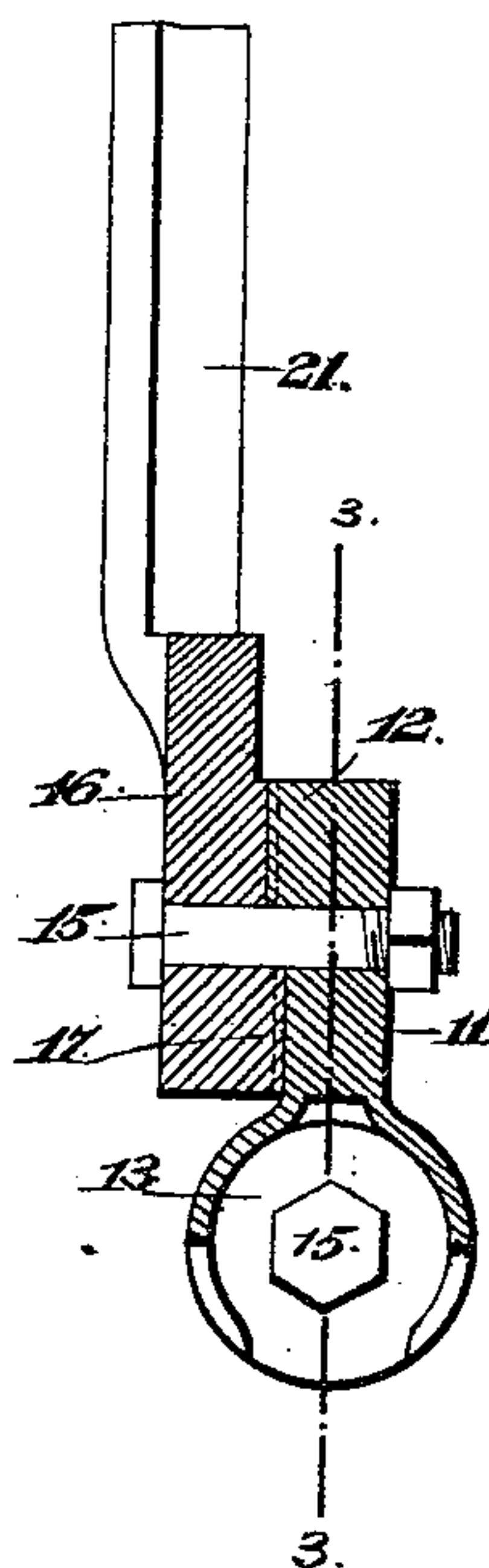
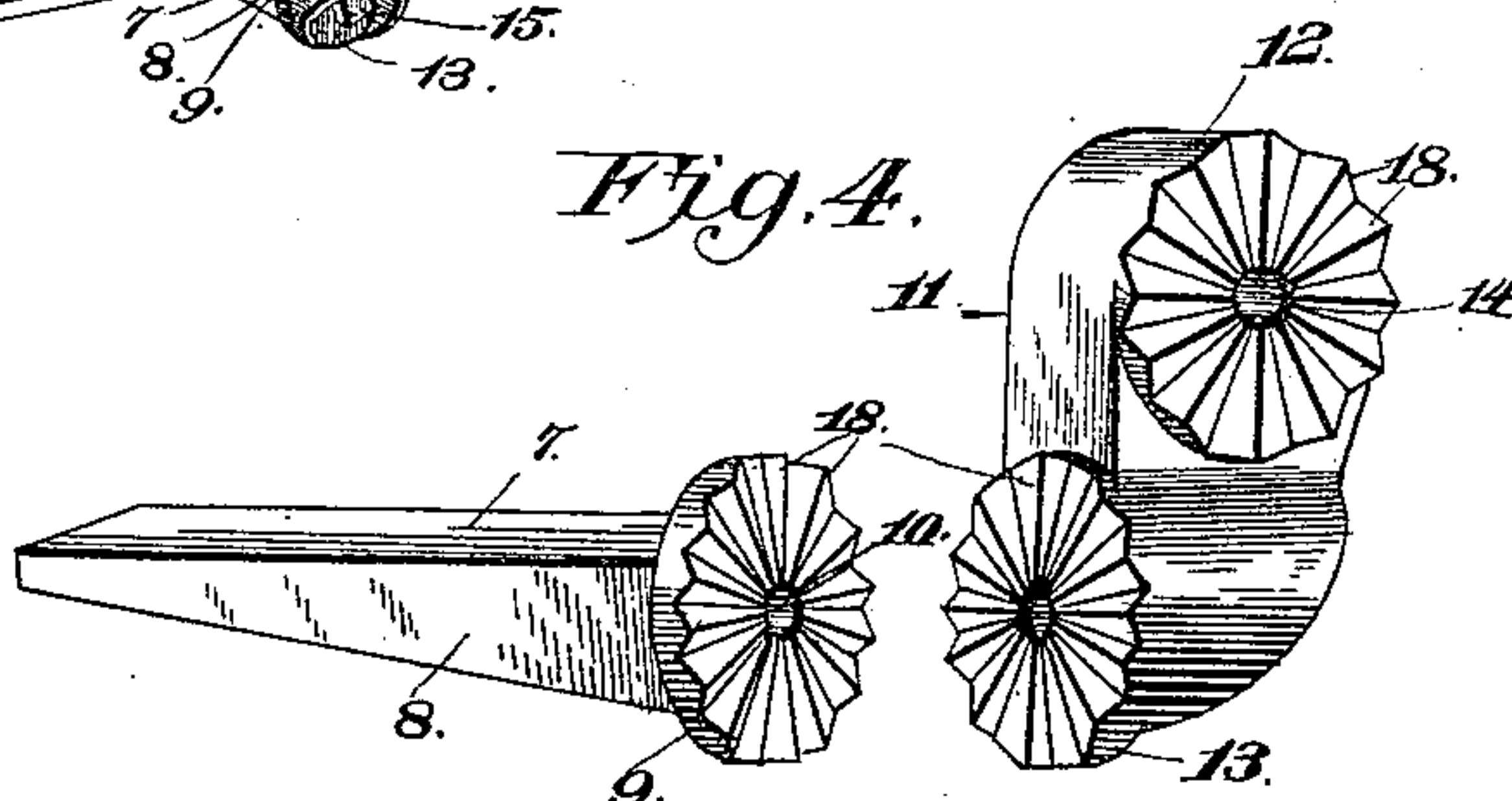
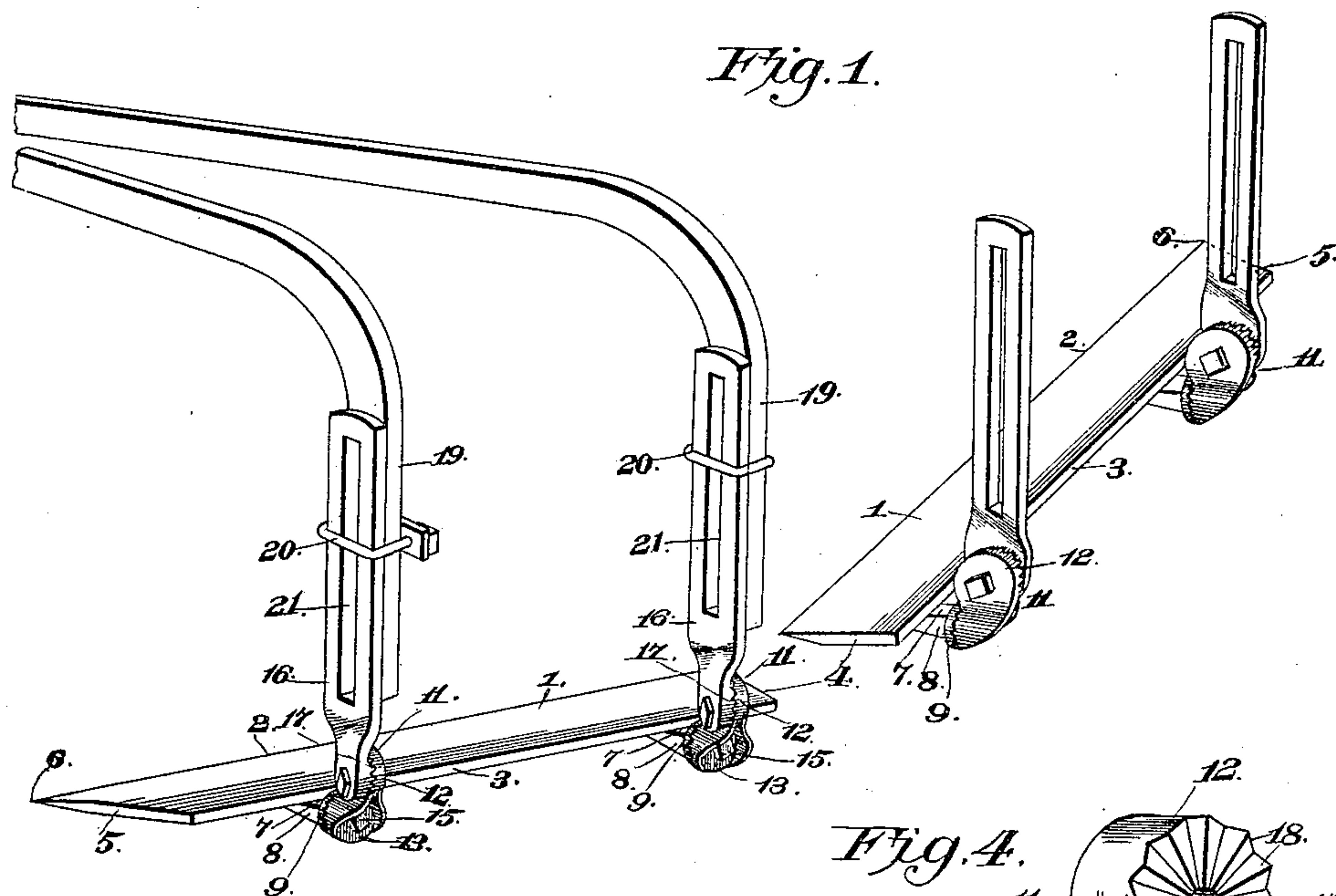
(No Model.)

2 Sheets—Sheet 1.

E. CRANDELL.
CULTIVATOR ATTACHMENT.

No. 438,759.

Patented Oct. 21, 1890.



Witnesses

M. Fowler
Wm. Baggett

Inventor

Eustace Crandell

By this Attorneys,

C. A. Snow & Co.

(No Model.)

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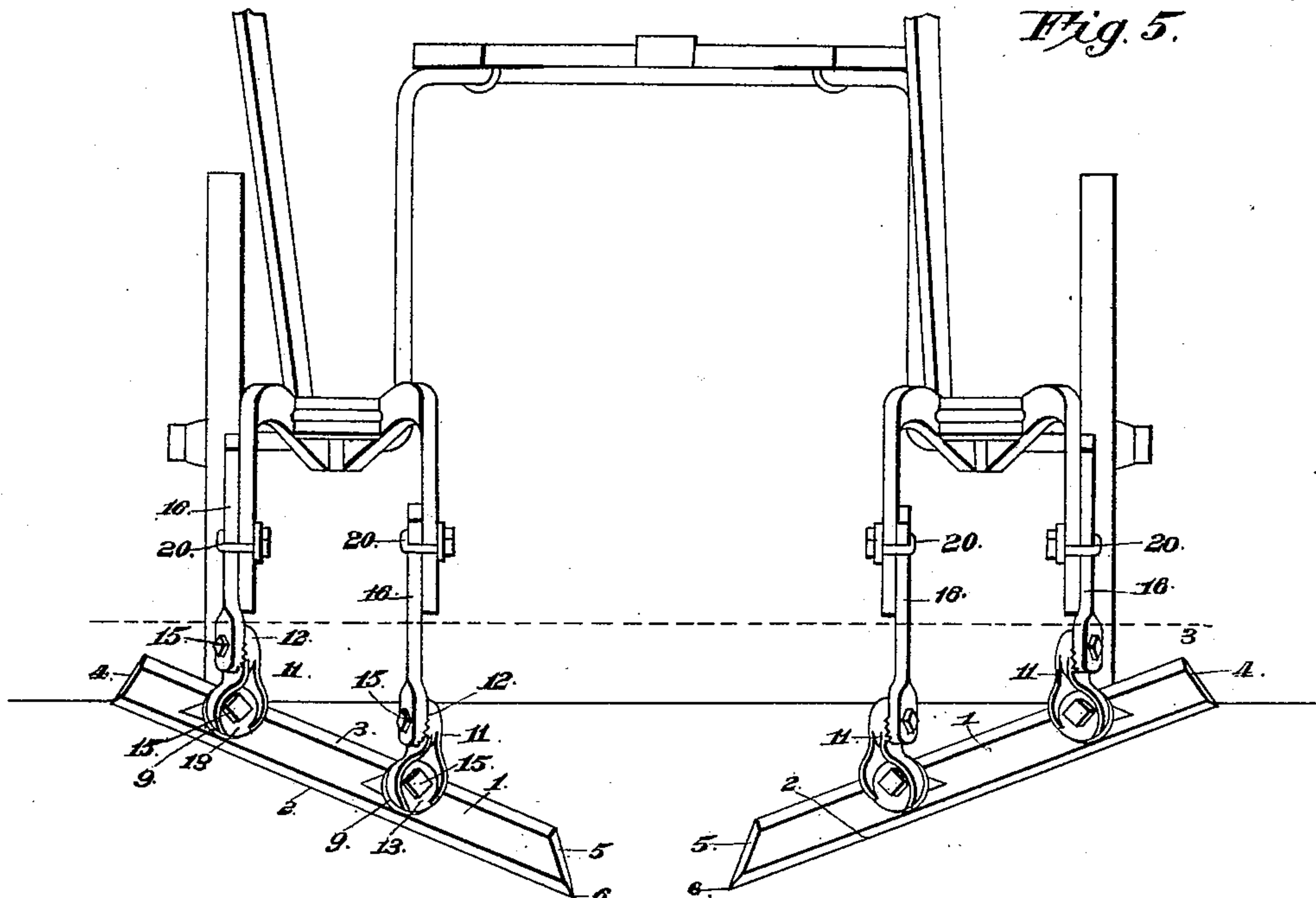
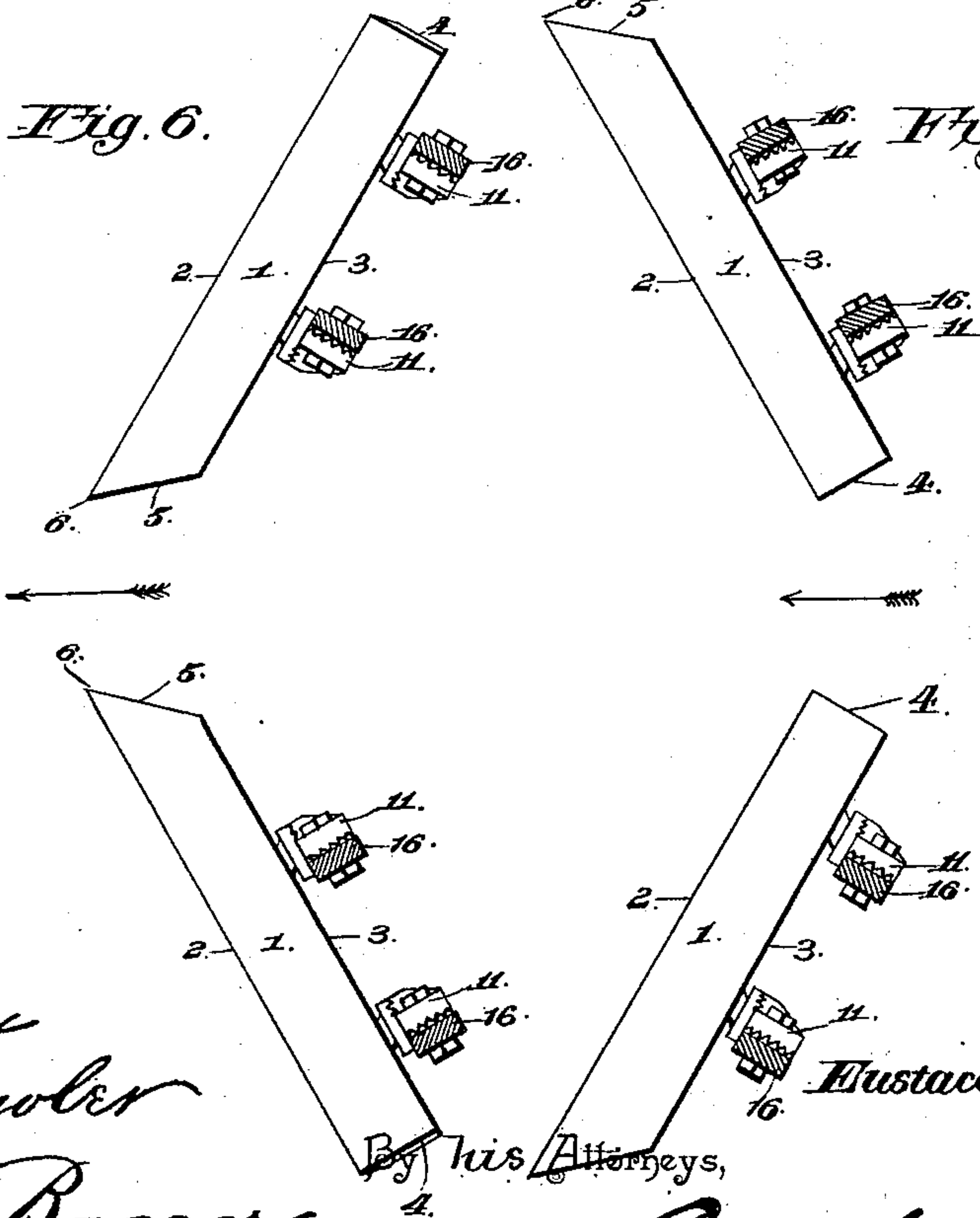


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

EUSTACE CRANDELL, OF ALEXANDER, KANSAS.

CULTIVATOR ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 438,759, dated October 21, 1890.

Application filed May 7, 1890. Serial No. 350,893. (No model.)

To all whom it may concern:

Be it known that I, EUSTACE CRANDELL, a citizen of the United States, residing at Alexander, in the county of Rush and State of Kansas, have invented a new and useful Cultivator Attachment, of which the following is a specification.

This invention relates to attachments for cultivators; and it has for its object to provide a set of blades which may be readily applied to cultivators of ordinary construction in place of the shovels ordinarily employed, and which shall be especially adapted for cultivating listed corn, although they will be found useful for other purposes.

My improved cultivator-blades are provided with universal joints to enable them to be secured to the cultivator-standards in various positions and at different angles of inclination.

The general construction and arrangement of parts comprised in my invention will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view showing a pair of cultivator-blades and the arms for attaching the same to the cultivator-standards constructed in accordance with the principles of my invention. Fig. 2 is a vertical sectional view taken through one of the arms and knuckle-joints. Fig. 3 is a sectional view taken on the line 3 3 in Fig. 2. Fig. 4 is a perspective detail view showing the parts constituting one of the knuckle-joints separated from each other. Figs. 5, 6, and 7 are detail views showing my improved attachment applied to a cultivator in various positions for operation.

Like numerals of reference indicate like parts in all the figures.

The blades which constitute my improved cultivator attachment are two in number and are designated in the drawings by 1 1. Said blades have parallel front and rear edges 2 and 3, the front edges being beveled to a sharp cutting-edge. The inner ends of the blades are at substantially right angles to the front and rear edges, as shown at 4. The outer ends 5 are beveled to a point 6 at the front edges. The blades may be of any suitable dimensions. From four to five inches wide and about

twenty-eight inches long will, however, be found a suitable size.

The under sides of the blades 1 are provided near their ends with rearward-extending arms or brackets 7, having side flanges 8, and provided at their rear ends with circular bearing-plates 9, having central perforations 10.

11 11 designate the knuckle-joints, which are provided with circular bearing-plates 12 and 13, formed at right angles to each other and having perforations 14 for the passage of the connecting-bolts. The lower bearing-plates 13 are connected by means of bolts 15 with the circular bearing-plates 9 at the rear end of the brackets 7. The upper bearing-plates 12 are in like manner connected with the lower ends of the upward-extending arms 16, by means of which the devices are to be attached to the cultivator-standards. The said arms 16 are provided at their lower ends with circular bearing-plates 17. The meeting faces of the bearing-plates 9 and 13 and 12 and 17, respectively, are provided with radial notches or corrugations 18, in order that when the nuts upon the connecting-bolts are tightened the parts shall be securely retained at any desired adjustment.

In operation the arms 16 of the attachment may be secured to the standards 19 of any ordinary cultivator by means of clips 20. The said arms 16, however, are also provided with vertical slots 21, in order that they may be conveniently attached to such cultivator-standards as are provided with bolts for the attachment of blades, shovels, fenders, or the like.

The operation of my invention will be readily understood from the foregoing description and by reference to the drawings hereto annexed.

Although I have described the pointed ends of the blades as being the outer ends, it is obvious that by exchanging the blades from side to side of a double cultivator the points may be placed at the inner ends. Thus in Figs. 5 and 6 of the drawings I have shown the blades attached to the cultivators with the points at their inner ends and inclined downwardly into the listed furrow, so as to shove the dirt away from the plants. When thus adjusted the attachment may be worked

when the plants are very small, and the blades may be set so as to run at any desired depth and to pull down as much dirt as may be desired. The blades are set slantingly, so that weeds and trash will not interfere with the operation by hanging on the cutting-edges. It will be readily seen that either one of the arms 16 may be easily raised or lowered, so as to suit the inclination of the sides of the furrow, the universal joints admitting of such adjustment being quickly and easily made. In like manner may the blades be set at any desired angle to the surface of the ground.

In Fig. 7 I have shown the blades set to work on level ground with the points out, thus drawing the dirt toward the plants. When in this position they may be used for hilling up the young plants. When the blades are used to work on level ground, they may be set with the points in instead of out, when they will work in the manner of a hoe, cutting the weeds just under the surface.

In Fig. 1 I have shown the blades set to work on listed ground with the points out, drawing the dirt to the plants. It is obvious that many other adjustments may be made to suit any circumstances and of which the cultivator having my improved attachments is to be used.

My invention, as will be seen from the foregoing description, is exceedingly simple in construction and may be manufactured at a moderate expense. It may be easily applied to any cultivator of ordinary construction, irrespective of its having wooden or iron beams. The blades may be readily changed from one side to the other and any desired adjustment may be easily and quickly effected by simply loosening the nuts upon the connecting-bolts, raising or lowering the ends of the blades, as may be desired, and again tightening the said nuts, when the blades will be held securely in the position in which they may have been placed.

Having thus described my invention, what I claim is—

1. In a cultivator attachment, the combination of the blades having rearward-extending arms or brackets, the vertical arms for connecting said blades to the cultivator-standards, and the links or knuckle-joints connecting the lower ends of said arms with the rear ends of

the brackets extending from the blades, substantially as set forth.

2. In a cultivator attachment, the combination of the blades having rearward-extending arms provided with circular bearing-faces at their rear ends, the arms having circular bearing-faces at their lower ends, and the links or knuckle-joints having circular bearing-faces at right angles to each other, and provided with bolts connecting the said links with the bearing-faces at the lower ends of the arms and the rear ends of the brackets extending rearwardly from the blades, substantially as set forth.

3. In a cultivator attachment, the combination of the blades having rearward-extending brackets, the arms for connecting said blades to the cultivator-standards, the connecting-links having bearing-faces at right angles to each other, and the connecting-bolts, the meeting faces of said links, arms, and brackets being provided with radial grooves or corrugations, substantially as set forth.

4. In a cultivator attachment, the combination of the blades having rearward-extending brackets provided with flanged sides and having bearing-plates at their rear ends, the arms for connecting said blades to the cultivator-standards, having bearing-plates at their lower ends, the connecting-links having bearing-plates at right angles to each other, and the connecting-bolts, substantially as set forth.

5. The combination, with the cultivator-standards, of the vertically-slotted adjustable arms secured to said standards, the connecting-clips, and the blades secured to the lower ends of said arms by universal joints, substantially as set forth.

6. The combination of the cultivator-standards, the adjustable vertically-slotted arms, the links secured to the lower ends of said arms and having bearing-faces at right angles to each other, the blades connected adjustably to said links, and the connecting-bolts, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EUSTACE CRANDELL.

Witnesses:

IRA C. SAGE,
T. E. ICKES.