

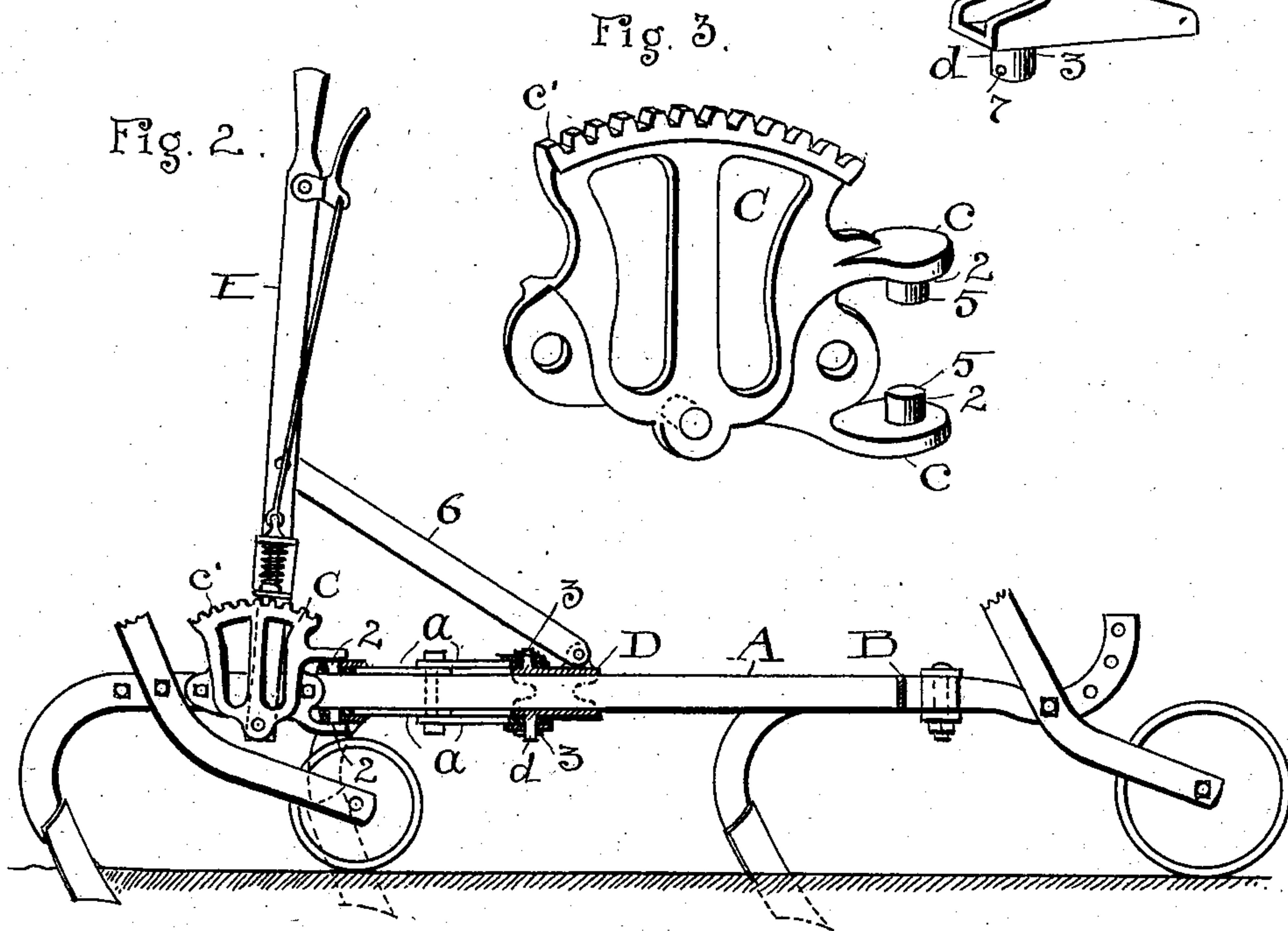
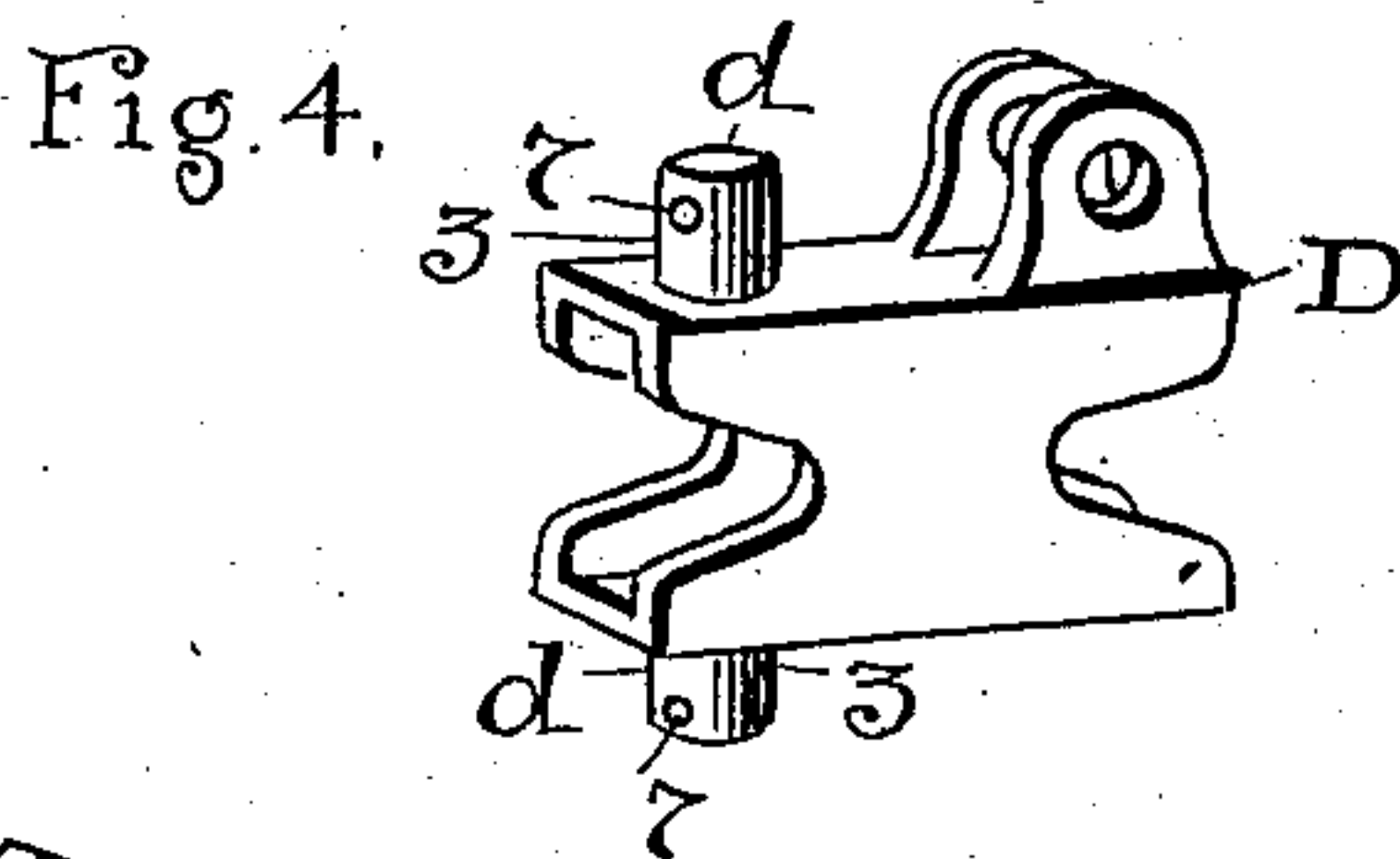
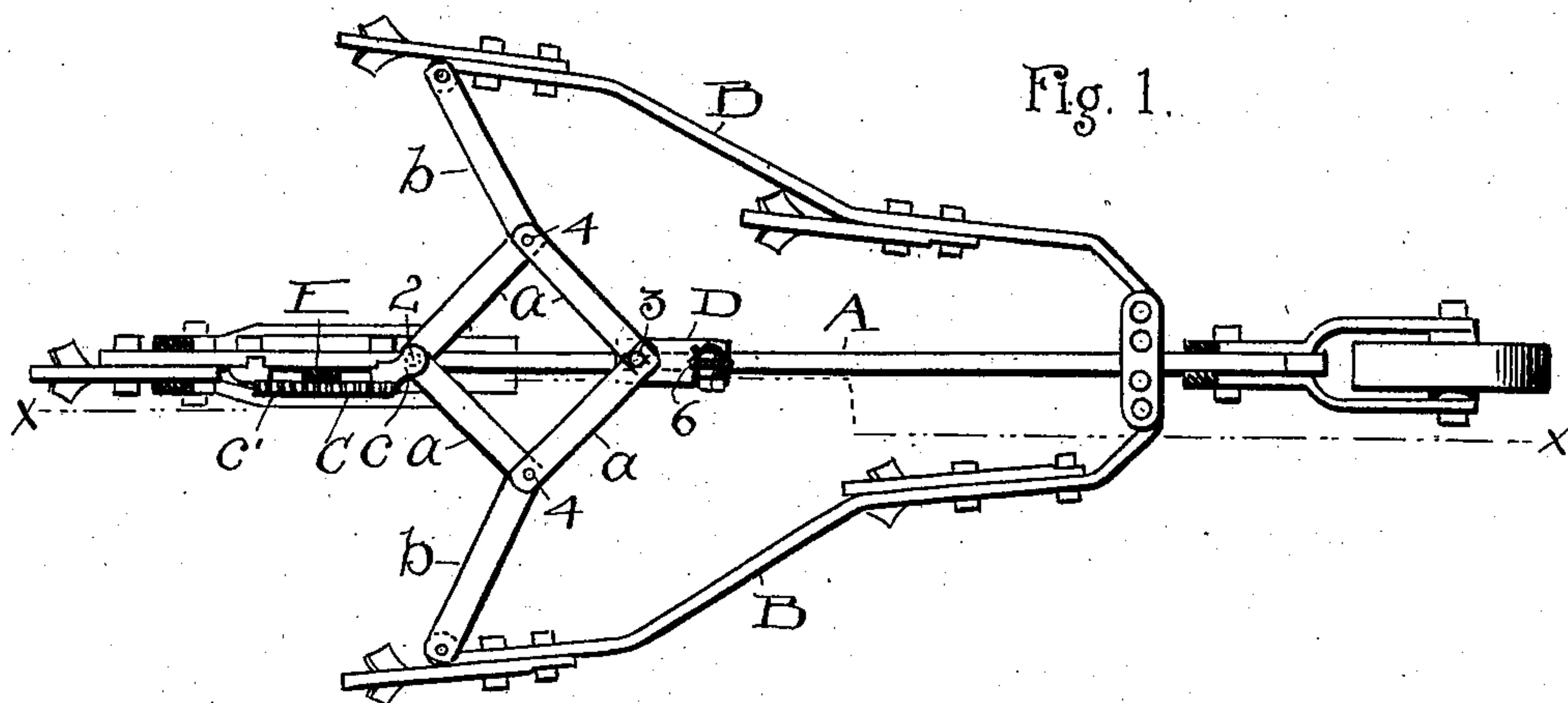
No. 720,135.

PATENTED FEB. 10, 1903.

E. HAIMAN & G. N. MURRAY.
CULTIVATOR.

APPLICATION FILED DEC. 20, 1901.

NO MODEL.



ATTEST.

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UNITED STATES PATENT OFFICE.

ELIAS HAIMAN AND GEORGE N. MURRAY, OF CLEVELAND, OHIO,
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OHIO, A CORPORATION.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 720,135, dated February 10, 1903.

Application filed December 20, 1901. Serial No. 86,720. (No model.)

To all whom it may concern:

Be it known that we, ELIAS HAIMAN and GEORGE N. MURRAY, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Cultivators; and we do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in cultivators; and the invention consists in the construction and combination of parts, substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a cultivator embodying our improvement. Fig. 2 is a side elevation thereof substantially on line *x x*, Fig. 1. Fig. 3 is a detail view of the casting which serves as a rack for the handle and connections for the adjusting-links, as hereinafter fully described. Fig. 4 is a perspective view of the sliding box on the central beam.

The idea of this invention is to simplify the construction and improve the operation of the cultivator as a whole, and especially in the particulars relating to the adjustment and control of the side tooth-bars. To these ends the structure comprises a single central beam or bar A and side bars B, one on each side, as here shown, with teeth, as usual. The side bars are pivoted at their front, also as usual, and are adapted to be adjusted and held laterally at their rear ends by means of a set of four toggle-links *a* and connecting-links *b*. The initial and fixed point of links *a* is at 2 on casting C, and their secondary point is at 3 on box D, adapted to slide on central beam A, while side links *b* are connected with pivot-points 4 of toggle-links *a*. The casting C is constructed to be permanently secured to beam A by screws, clips, or other sufficient means and is characterized especially by two parallel projections *c* at its front, one above the other, and having lugs 5 on their inside, in position and relation to come against or upon the bottom and top

edges of beam A, as seen in Fig. 2. The links *a* are in pairs, so that one engages over the upper lug 5 and the other over the lower lug 5, and the length of said lugs is such as will accommodate two of said links, which are confined on the inside wholly by beam A and on the outside by projections *c*. By the foregoing construction the said links can only be released by removing casting C. The said casting is further provided with a segmental rack *c'* for the pawl on hand-lever E. A link 6 connects said lever with the sliding box D, and said lever is pivoted at its lower end on casting C. Box D has lugs *d* on the top and bottom, corresponding to lugs 5 and adapted to receive links *a* in pairs, one from each side, and said links may be confined by pins through holes 7 in said lugs or in any other available way. By arranging the links *a* in pairs in this way above and below beam A and connecting thence by links *b* with the side beams, we overcome all tendency to bind or lock in the adjustments and obtain a very easy and direct movement of the parts.

It will be observed that toggle-links *a* are in two pairs or sets, one above beam A and the other below, but both sets are alike in construction and operation and they coöperate in use. An operation could be effected by a single set of links, but the tendency to bend is such that such construction is practically impracticable. When the entire set of links is to be removed from the casting C, the said casting also is removed from its fastenings. The arms *c* might be malleable and flexible, but not preferably.

What we claim is—

1. In cultivators, a central beam and a slidable box thereon, side beams, and a double set of toggle-links *a* having a fixed pivot 2 on the central beam and connected with said slidable box, an operating-lever and a link connecting it with the said slidable box, and links *b* connecting said toggle-links with the side beams, whereby the side beams and slidable box and lever are flexibly linked together, substantially as described.

2. In cultivators, a central beam and a fixed part thereon provided with lugs impinging

upon the top and bottom of said beam, toggle-links in pairs connected with said lugs, and a slidable box on said beam operatively connected with said toggle-links, substantially
5 as described.

3. A middlecultivator-beam and a fixed part thereon having parallel extremities with inwardly-projecting lugs embracing said beam top and bottom, in combination with side
10 beams, a slidable box on the middle beam, and toggle-links engaged in sets with said lugs and with said side beams and box, substantially as described.

4. A cultivator having a central beam and

a casting secured to the said beam having 15 projections extending across the beam top and bottom and provided with lugs on their inside opposite the edges of the said beams, and a set of toggle-links pivotally connected with each of said lugs, substantially as de- 20 scribed.

Witness our hands to the foregoing specification this 6th day of December, 1901.

ELIAS HAIMAN.

GEORGE N. MURRAY.

Witnesses:

R. B. MOSER,

H. T. FISHER.