

(No Model.)

3 Sheets—Sheet 1.

W. H. BONWELL.
WHEEL CULTIVATOR.

No. 436,690.

Patented Sept. 16, 1890.

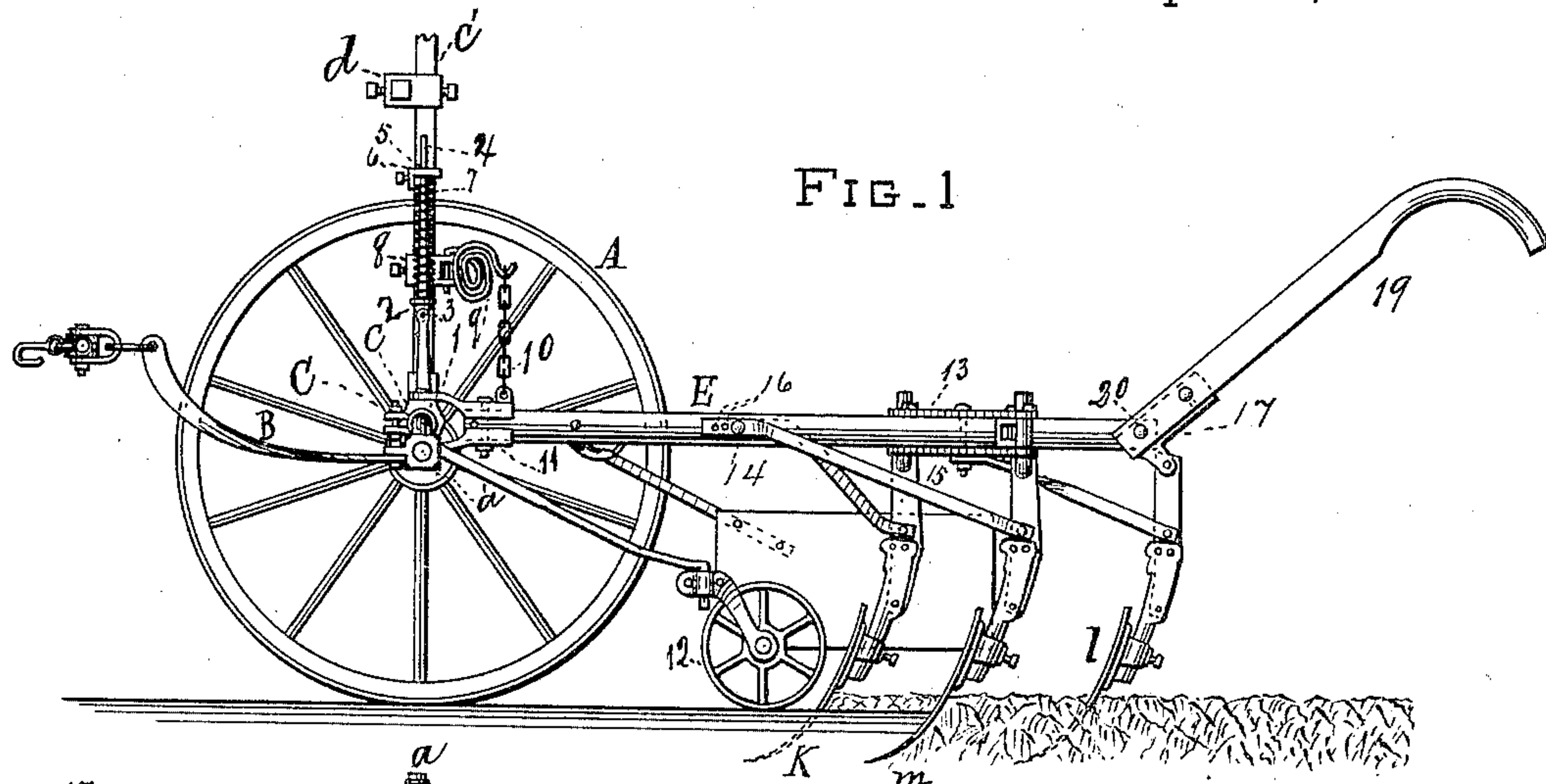


FIG. 1

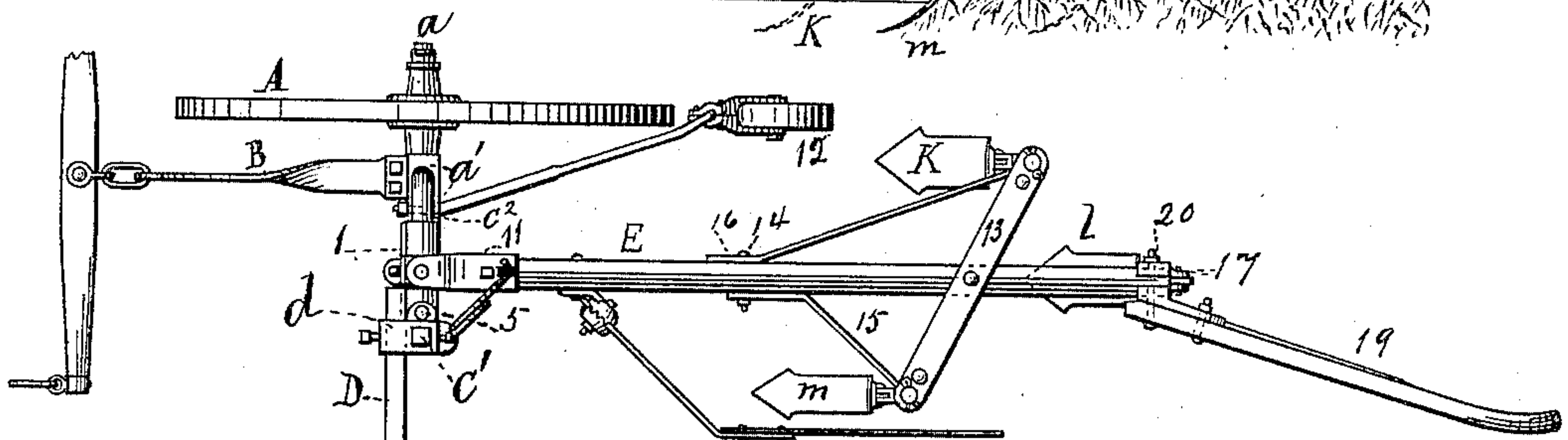


FIG. 2

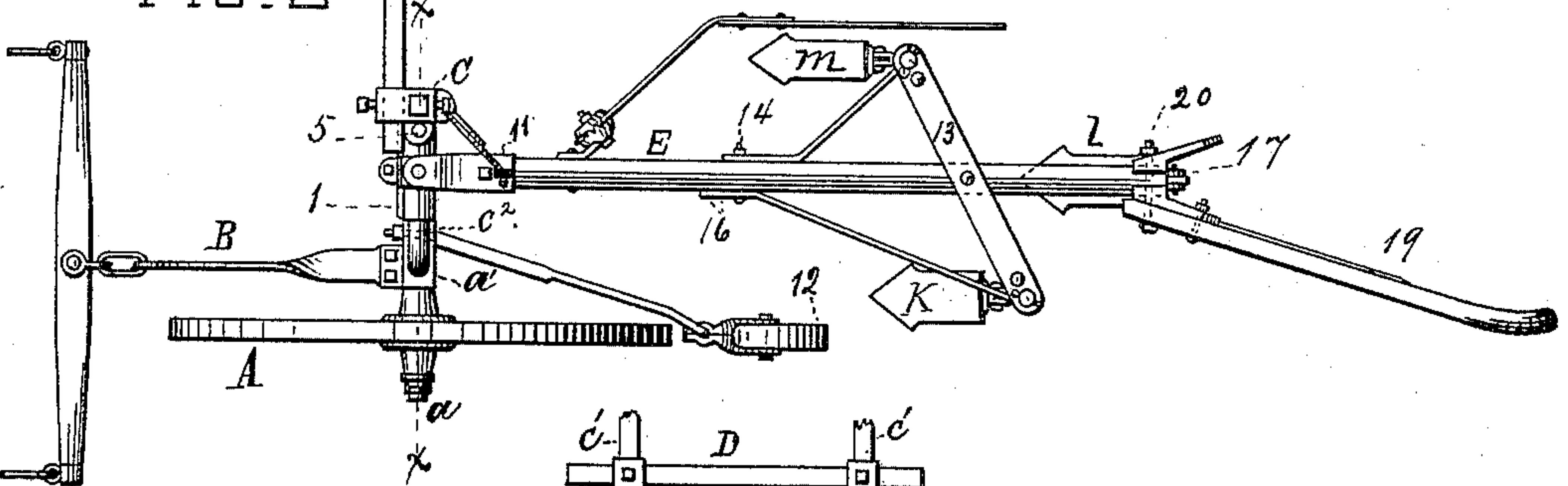


FIG. 3

WITNESSES:

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Albert Spiden

INVENTOR:

William H. Bonwell.

per

M. F. Chamblin & Co.
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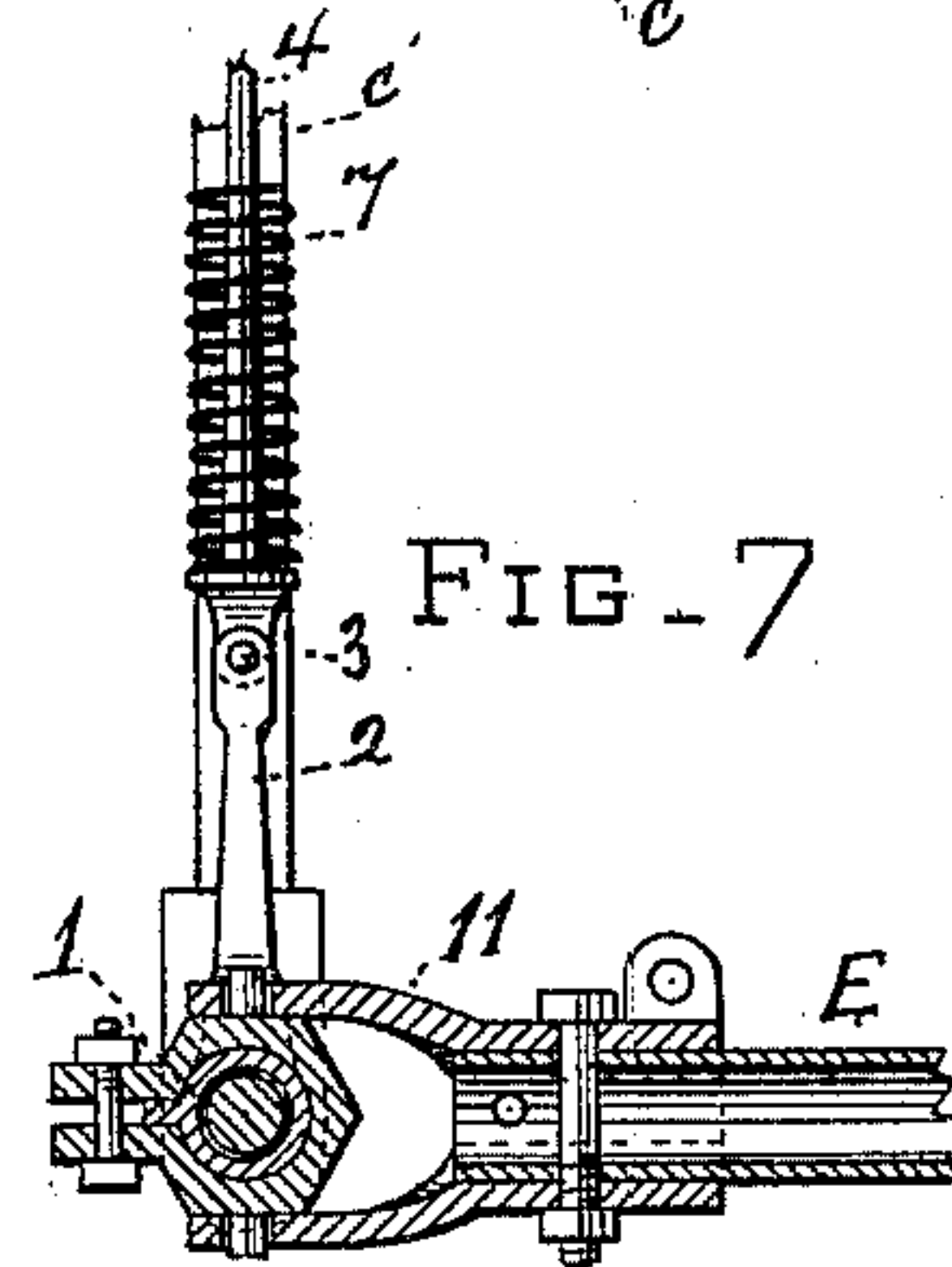
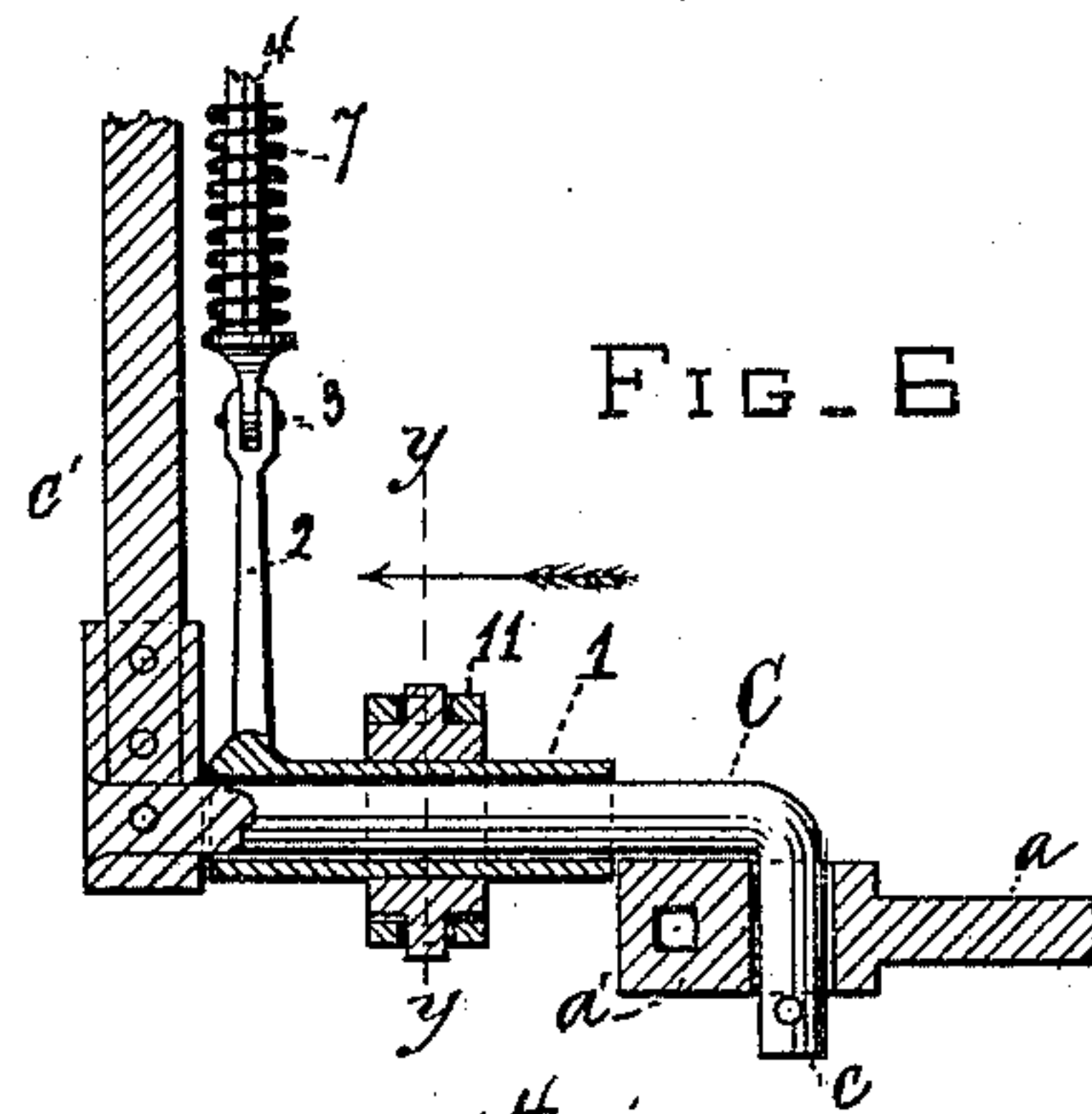
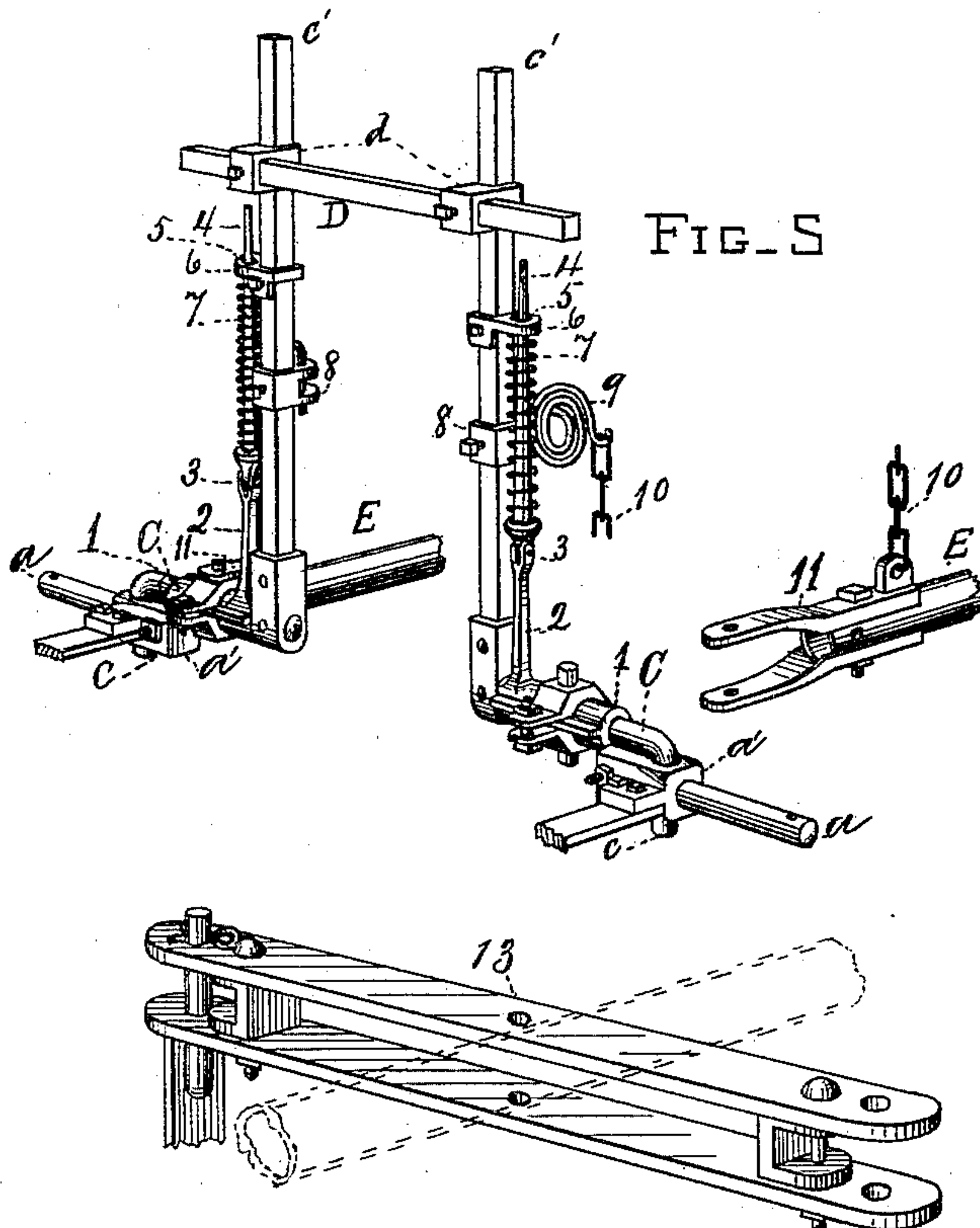
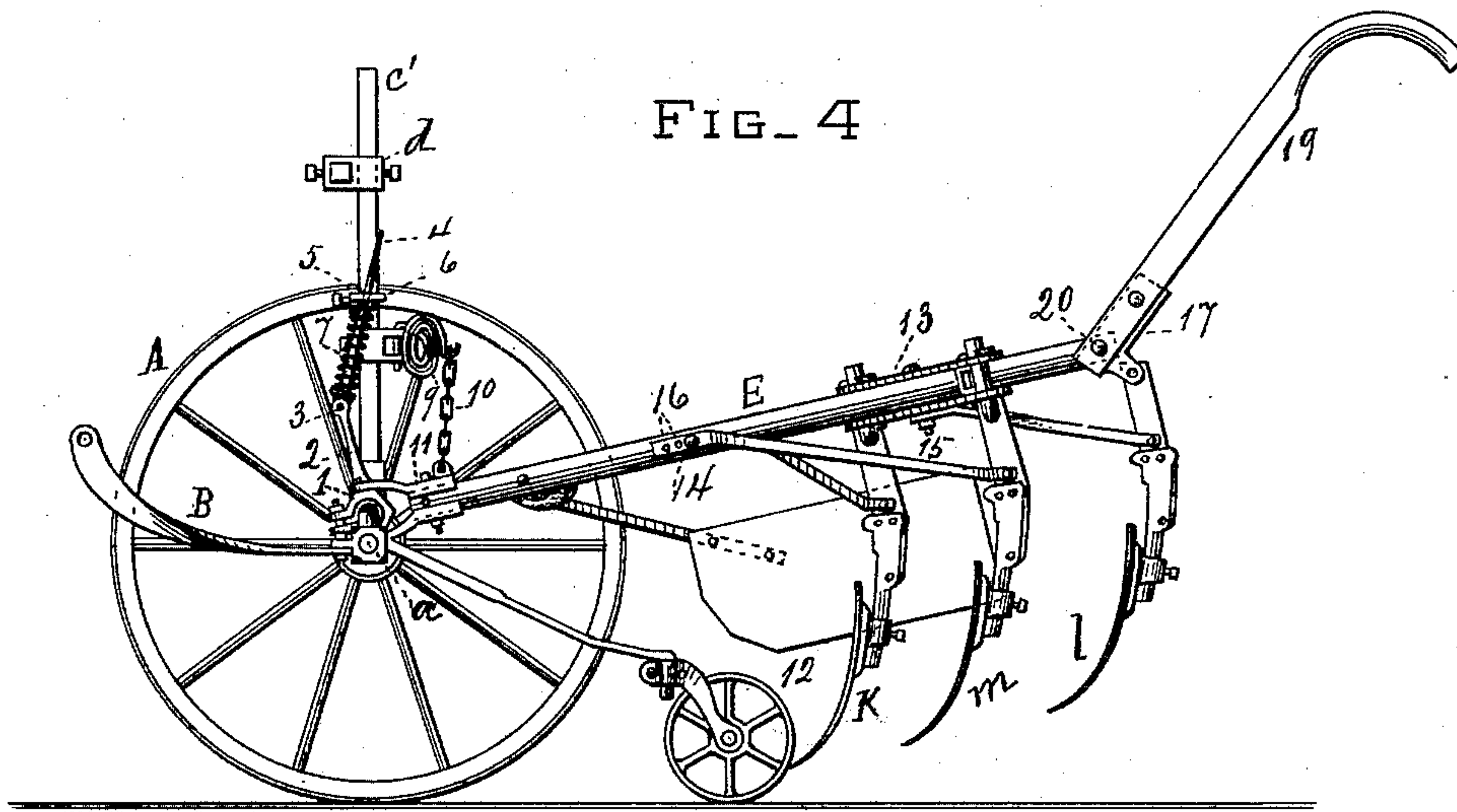
(No Model.)

3 Sheets—Sheet 2.

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WITNESSES: FIG. 8

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3 Sheets—Sheet 3.

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FIG. 9

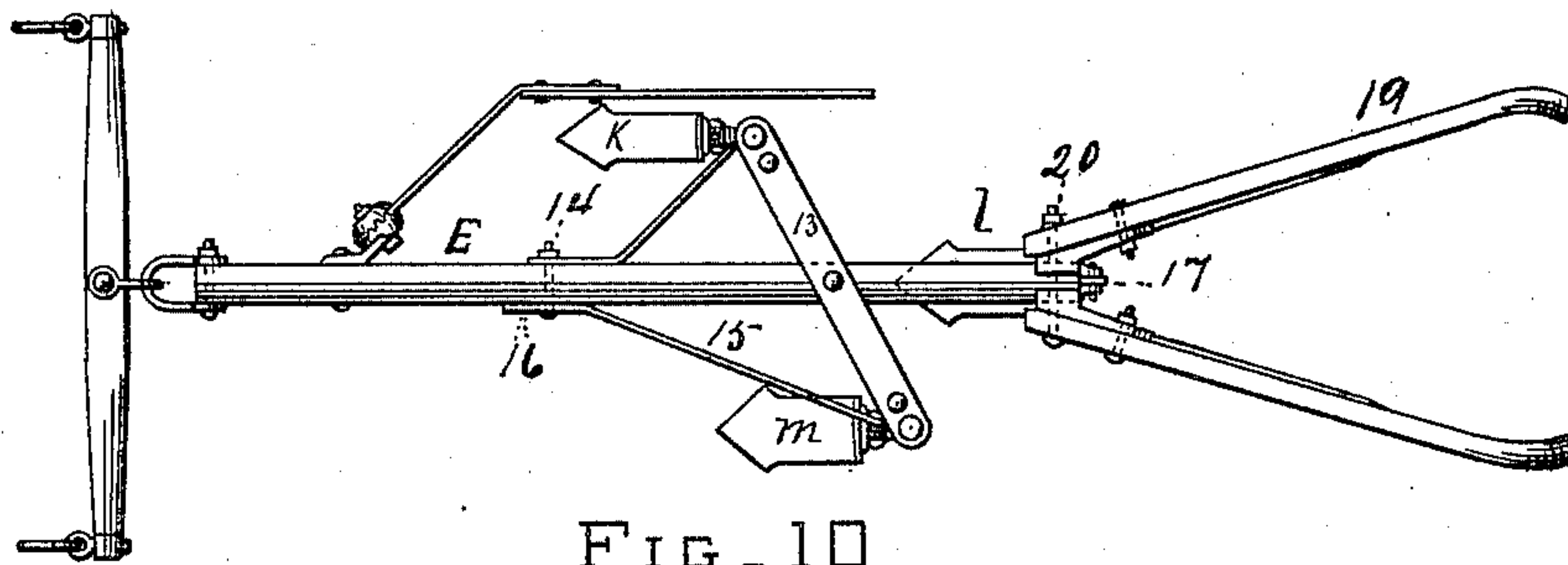
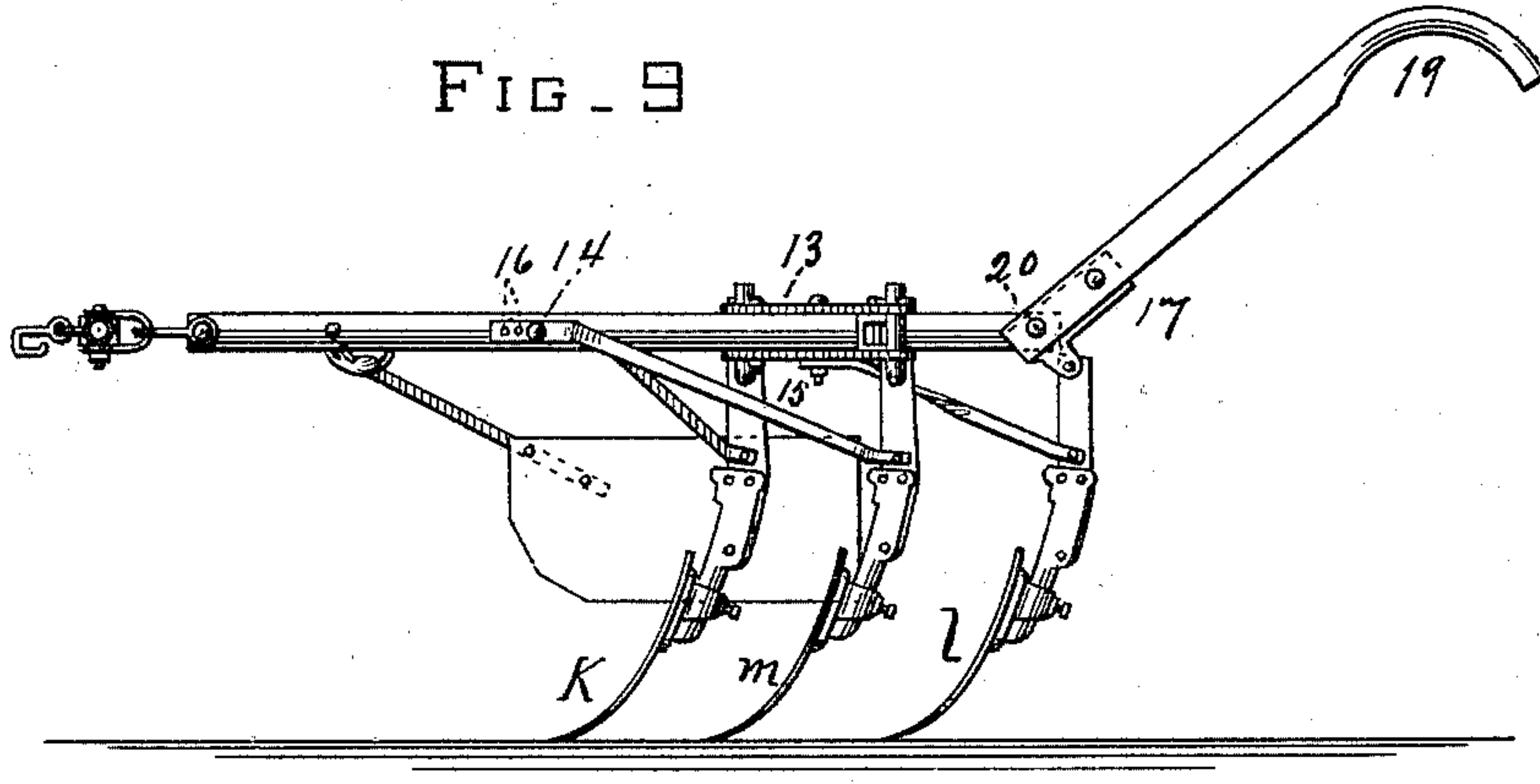


FIG. 11

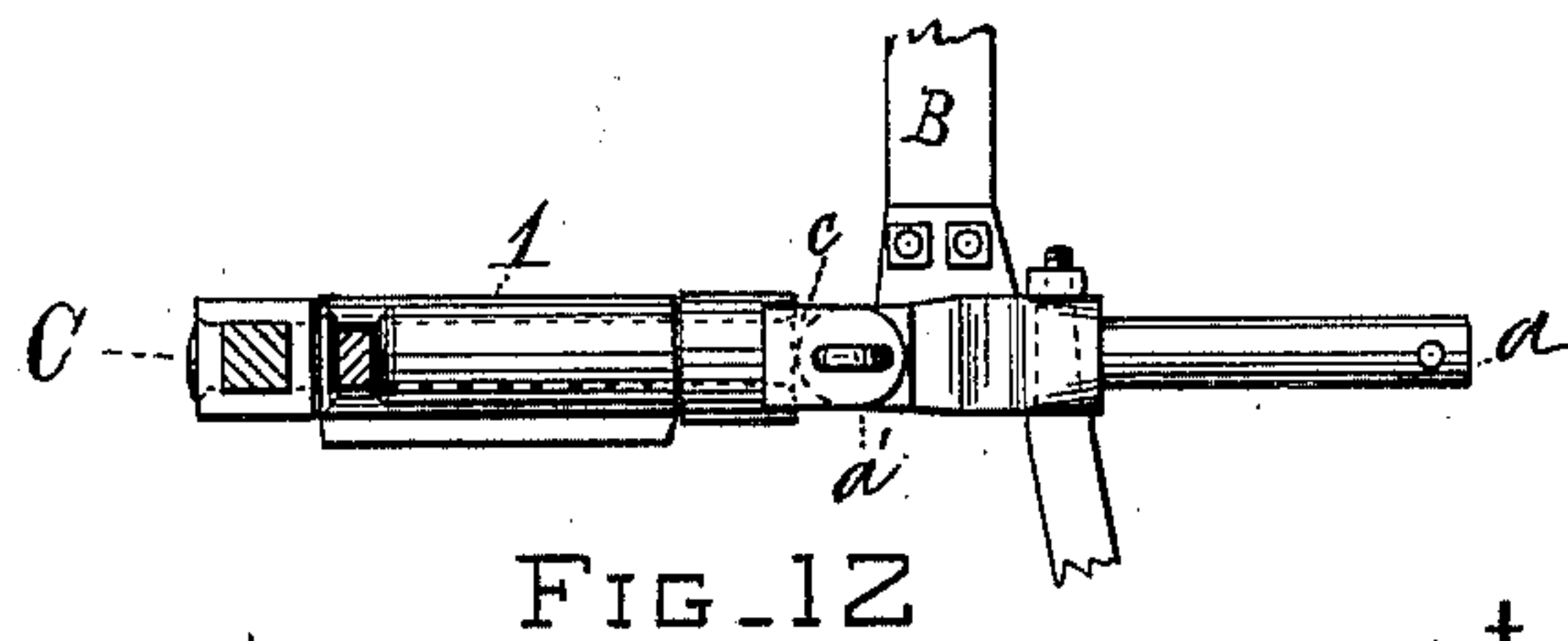
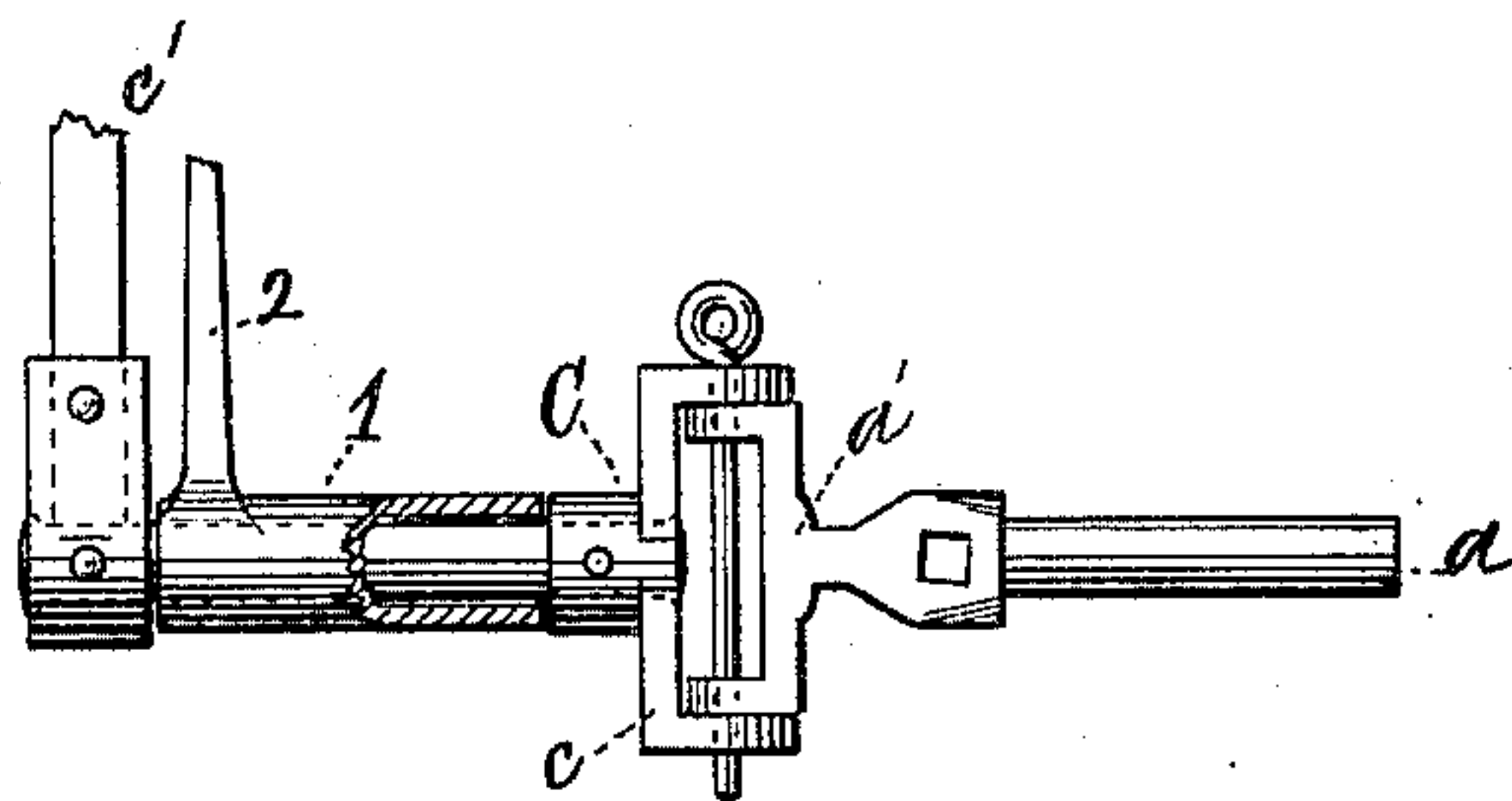


FIG. 12

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM H. BONWELL, OF BROOKVILLE, INDIANA.

WHEEL-CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 436,690, dated September 16, 1890.

Application filed May 17, 1890. Serial No. 352,163. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BONWELL, a citizen of the United States, residing at Brookville, in the county of Franklin and State of Indiana, have invented certain new and useful Improvements in Wheeled Cultivators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in wheeled gang plows or cultivators for which Letters Patent were granted to me August 21, 1888, No. 406,422; and the objects of my improvements, are, first, to provide a mechanism whereby the depth of the plow-shares may be completely regulated; second, a more effectual and practical means for elevating the share-beams with a view of moving the cultivator from place to place; third, an improved means for holding the arch of the plow firmly in its normal position, so that the same cannot spring either backward or forward; fourth, a means for elevating or lowering the handles of the plow to any desired point; fifth, a means whereby the two outside shares can be moved closer together or wider apart, and, sixth, to provide a means for detaching readily and quickly any one plow from the gang with a view of using the same as a single-horse plow. I attain said objects by a certain combination and arrangement of parts fully described in this specification, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a top plan view. Fig. 3 is a front elevation. Fig. 4 is a side elevation showing the position in which the plow or plows are placed when it is desired to move the same from one place to another when in operation. Fig. 5 is a detailed view of the arch and the end of the plow. Fig. 6 is a front sectional view. Fig. 7 is a side sectional end view. Fig. 8 is a detached view of the cross-bar that carries the outside plow-shares. Figs. 9 and 10 are modifications of my invention. Figs. 11 and 12 are modifications of parts to be hereinafter referred to.

In describing my improvements I shall des-

ignate the same with numbers, and in referring to the parts of my cultivator embodied in the old Letters Patent, I shall use the letters employed therein.

A A represent the bearing-wheels, and *a a* the axles upon which the same revolve. Said axles are constructed with their inner ends *a'*, through which there are orifices that receive and hold the lower vertical terminals *c* of the arch-bars C. (See Figs. 5 and 6.) Said arch-bars are bent at right angles and are connected across their upper vertical ends *c'*, through the mediums of the blocks *d*, which are adjustable vertically upon the ends *c'*. The rod D passes through the orifices in the front ends of the blocks *d*, and is horizontally adjustable and securely held at the point adjusted by means of set-screws. It will readily be observed that such being the construction and arrangement of the rod D, the wheels A may be made to assume varying distances corresponding to the width of the rows of corn, &c., to be cultivated, and the rod *d* set at varying heights to clear the tops of the corn, thereby preventing the same from being broken off.

There is located upon the horizontal portion *c'* of the arch-bar *c* a rotating circular box 1, having at its inner end an upright standard 2. At the top of said standard there is a toggle-joint 3, formed by means of said standard and the rod 4. The upper end of the rod 4 works in the orifices 5, which are made in the outer side of the sliding pieces 6. These pieces slide up and down the arch-bars C, and can be made stationary at any point by means of set-screws. Upon the rod 4 there is located a spiral spring 7. It will readily be seen by the aid of this new mechanism that the plows may be made to assume the position shown in Fig. 4, with a view of conveying the cultivator any distance without trouble or injury to same.

There is also located upon the arch-bars C another block 8, which likewise slides vertically up and down, and is secured at any point by set-screws. In the rear end of this block there is a coil-spring 9, having a hook upon its lower end, to which is attached a chain 10, which chain is secured to castings upon the share-beams E. By the aid of the

combination of the adjustable sliding block 8, the spring 9, and the chain 10 with the arch-bars C, the depth of the plow-shares can be regulated. This feature is also very valuable when moving the plows any distance over rough ground. As it can be used in connection with the preceding described mechanism, they both when so used afford a very strong and durable support, by which the plow gangs or shares may be elevated. These features also are of decided advantage in strengthening and holding the arch-bars C in a vertical position. While it is easily seen that said bars are in the main supported by means of vertical terminals *c*, passing perpendicularly through the inner ends *a'* of the axles *a a*, it will also be observed that said chains 10, spring 9, &c., as heretofore described, also subserve to strengthen and rigidly secure the arch-bar C, thereby preventing them from moving either backward or forward.

The share-beams E are attached to the circular rotating box 1 by means of a clevis 11. As said box rotates to and fro, it not only enables the share-beam E to be elevated any desired distance, but when the cultivator is in operation it also gives the plow-shares a vertical movement, thereby enabling them to fully adapt themselves to the evenness or unevenness of the earth's surface. It will also be observed just here that the share-beam E can be detached quickly by means of the clevis 11, and when so detached the cultivator can be used singly as a one-horse plow or otherwise. (See Figs. 9, 10, 11, and 12.) I attach special importance to this convenient and novel feature of my invention.

The draft-bars B are attached to the front side of the inner ends *a' a'* of the axles *a a*. In the rear side of the ends *a a* is a rod, to which is secured two trailing-wheels 12, which rest upon the ground in the rear of the bearing-wheels A. By the aid of the draft-bars B and the trailing-wheels 12 the cultivator is directed in any desired line of draft.

In Fig. 8 of the drawings, 13 represents two slotted cross-bars, through which the share-beams E pass. Said slotted bars are pivoted in the center through the share-beams and can be made to assume any angle to said beam. By taking out the bolt 14 and slipping forward or backward the brace-rods 15

and adjusting said bolt in a different orifice or hole 16 in the end of the brace-rods, the outer plowshares *k* and *l* can be made to assume a wide or narrow position relative to the share *m*. This is also a valuable feature of my invention.

There are castings 17, which are bolted to the share-beam E. Said castings are specially adapted to receive and hold the handles 19. By loosening the bolt 20 the casting can be raised or lowered with a view of correspondingly elevating or lowering the handles of the cultivator.

Having fully described my improvements, what I claim, and desire protected by Letters Patent, is—

1. In a wheeled cultivator, the combination of the axle, the arch-bar having the sliding block 8, the rotating circular box located upon the horizontal terminal of the arch-bar, the coiled spring 9, attached to the block 8, the chain 10, securing said spring to the share-beam, the share-beam, and the toggle-joint and spiral-spring attachments co-operating therewith, substantially as described, for the purpose of raising or lowering vertically and holding rigidly in position the share-beam while moving the cultivator from place to place.

2. In a wheeled cultivator, the combination of the axle having suitable bearing-wheels, a draft-bar upon its inner rear end carrying a suitable trail-wheel, the circular rotating box located upon the horizontal terminal of the arch-bar, the share-beam secured to said rotating circular box, the cross-bar pivoted to the shares, the casting bolted to the rear end of the share-beam and carrying the handles, the arch-bar having the vertical adjustable sliding blocks or castings, the toggle-joint, the spiral spring located upon the upper end of the toggle-joint, the coil-chain, and spring fastened to the cross-bar and the share-beam, respectively, and the connecting-bar of the arch, substantially as described, and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. BONWELL.

Witnesses:

FERDINAND S. SWIFT,
JOHN A. COLESCOTT.