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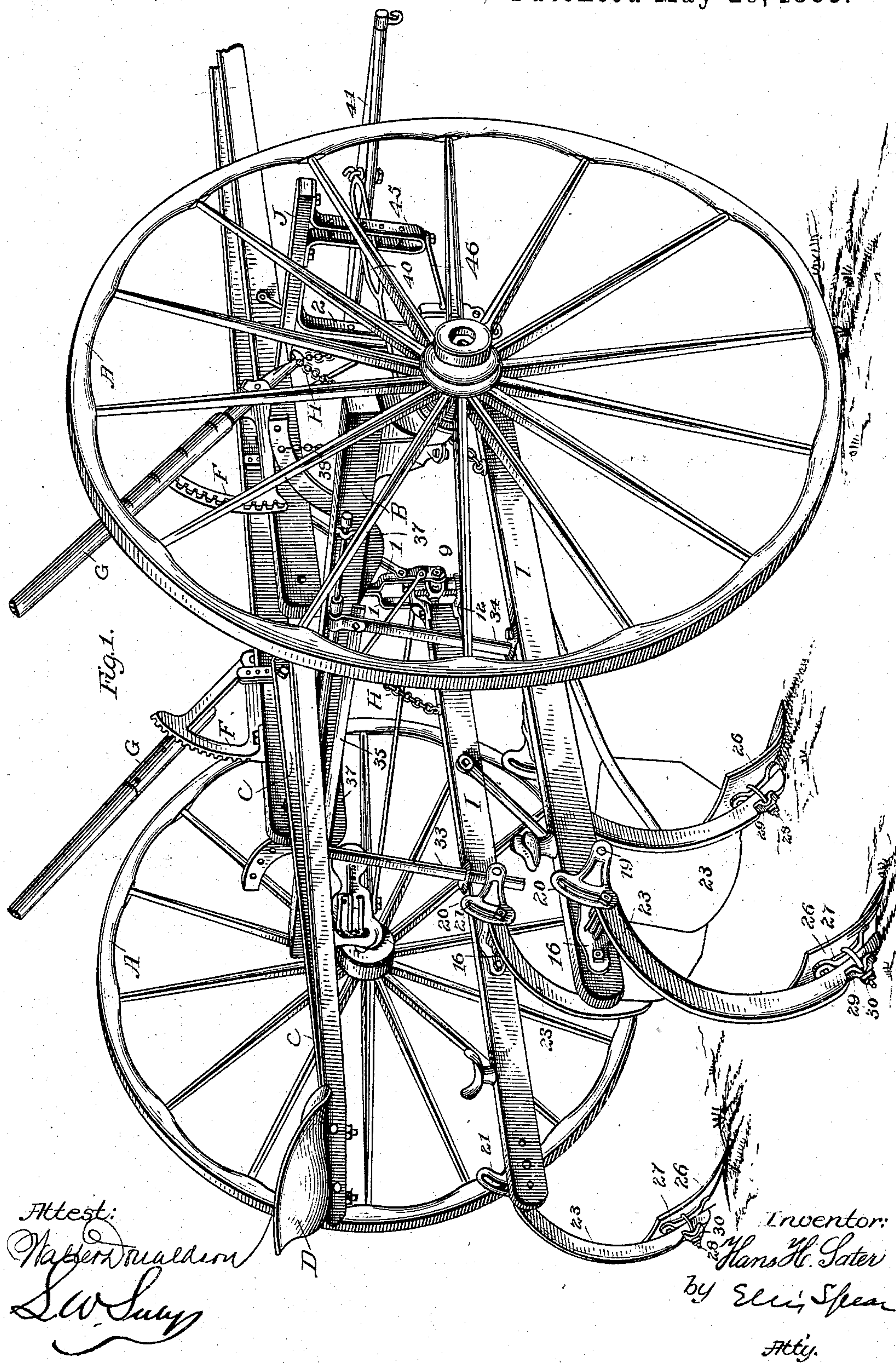
3 Sheets—Sheet 1.

H. H. SATER.

CULTIVATOR.

No. 278,366.

Patented May 29, 1883.



Attest:
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S. W. Sater

Inventor:
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by Eli Spear
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(No Model.)

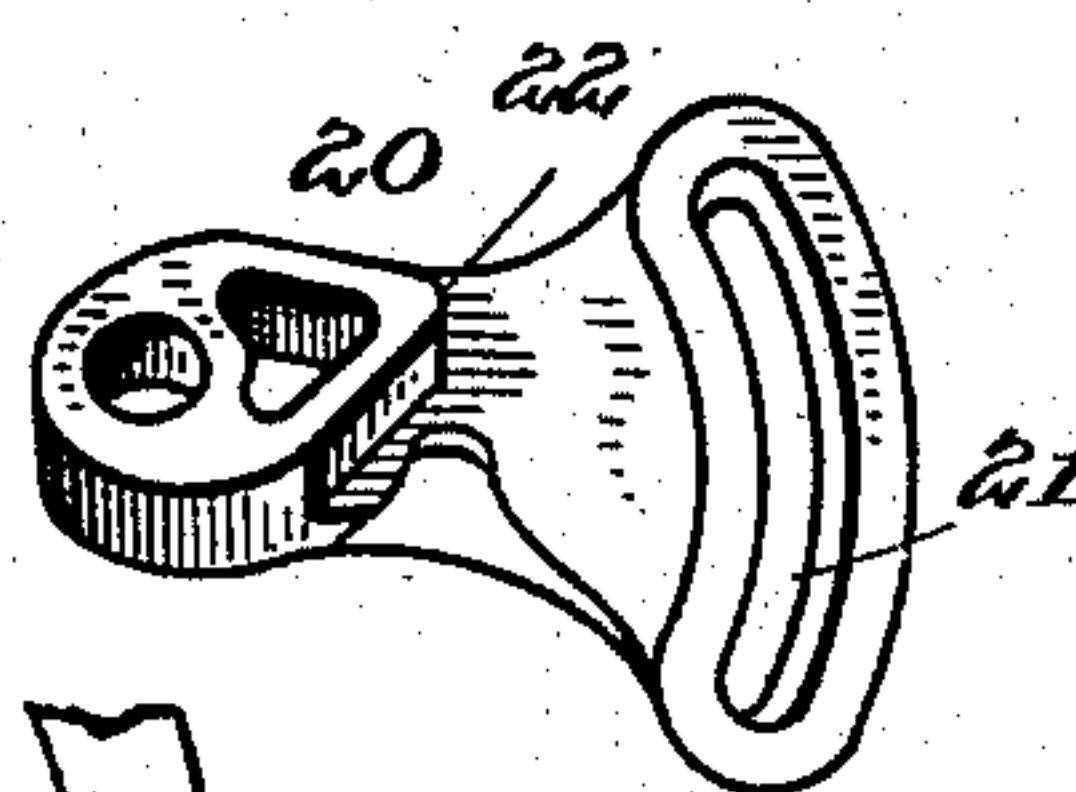
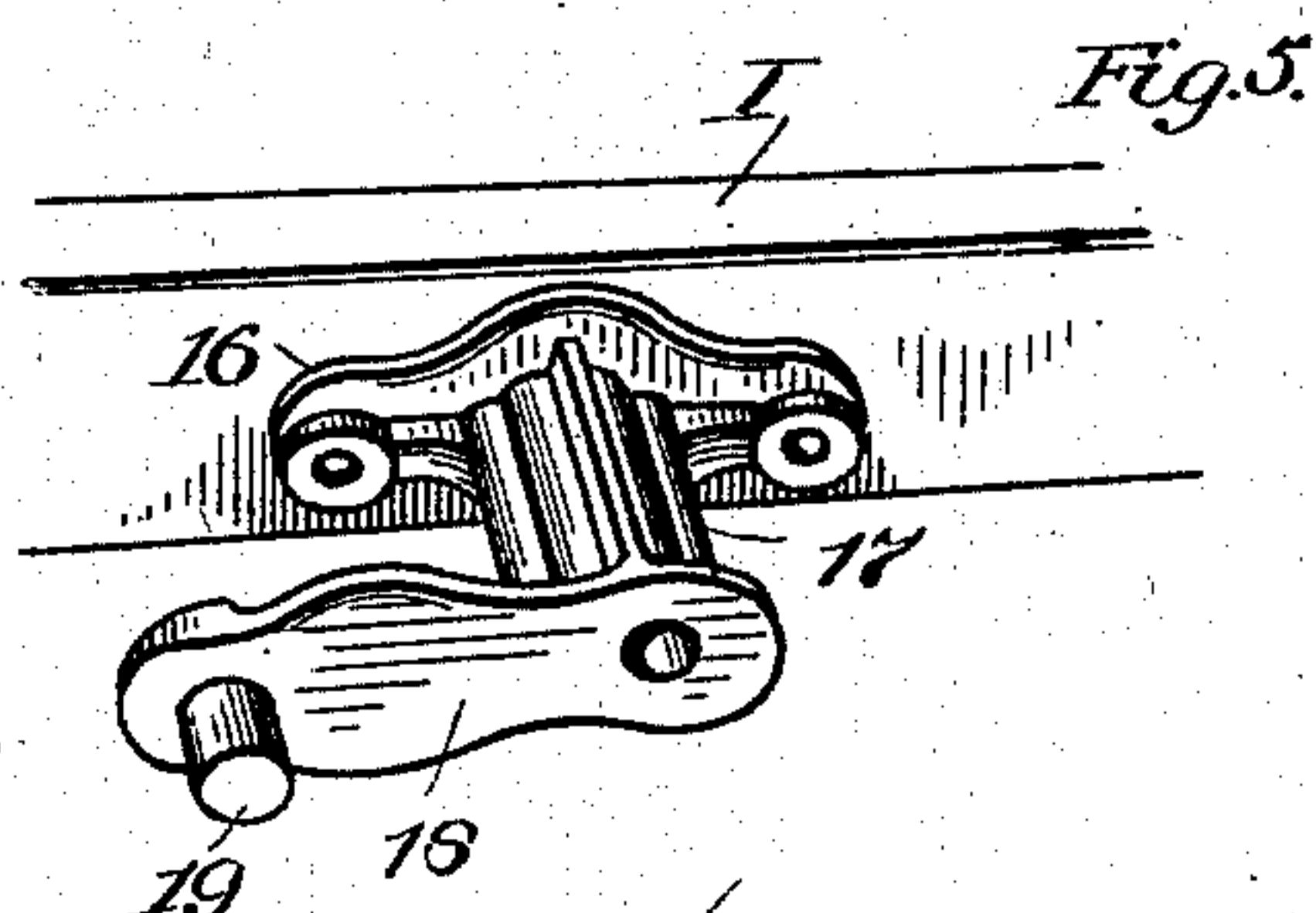
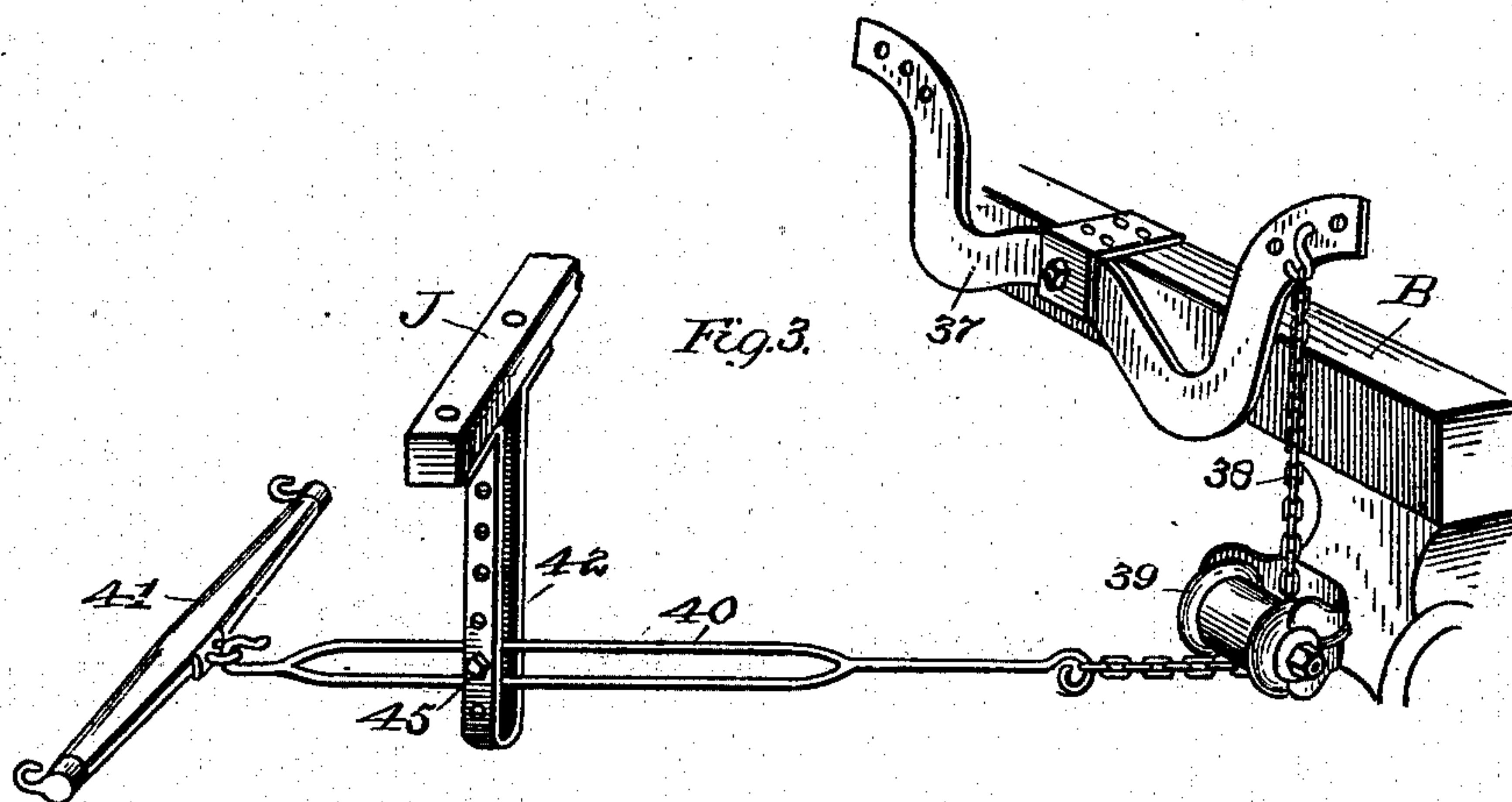
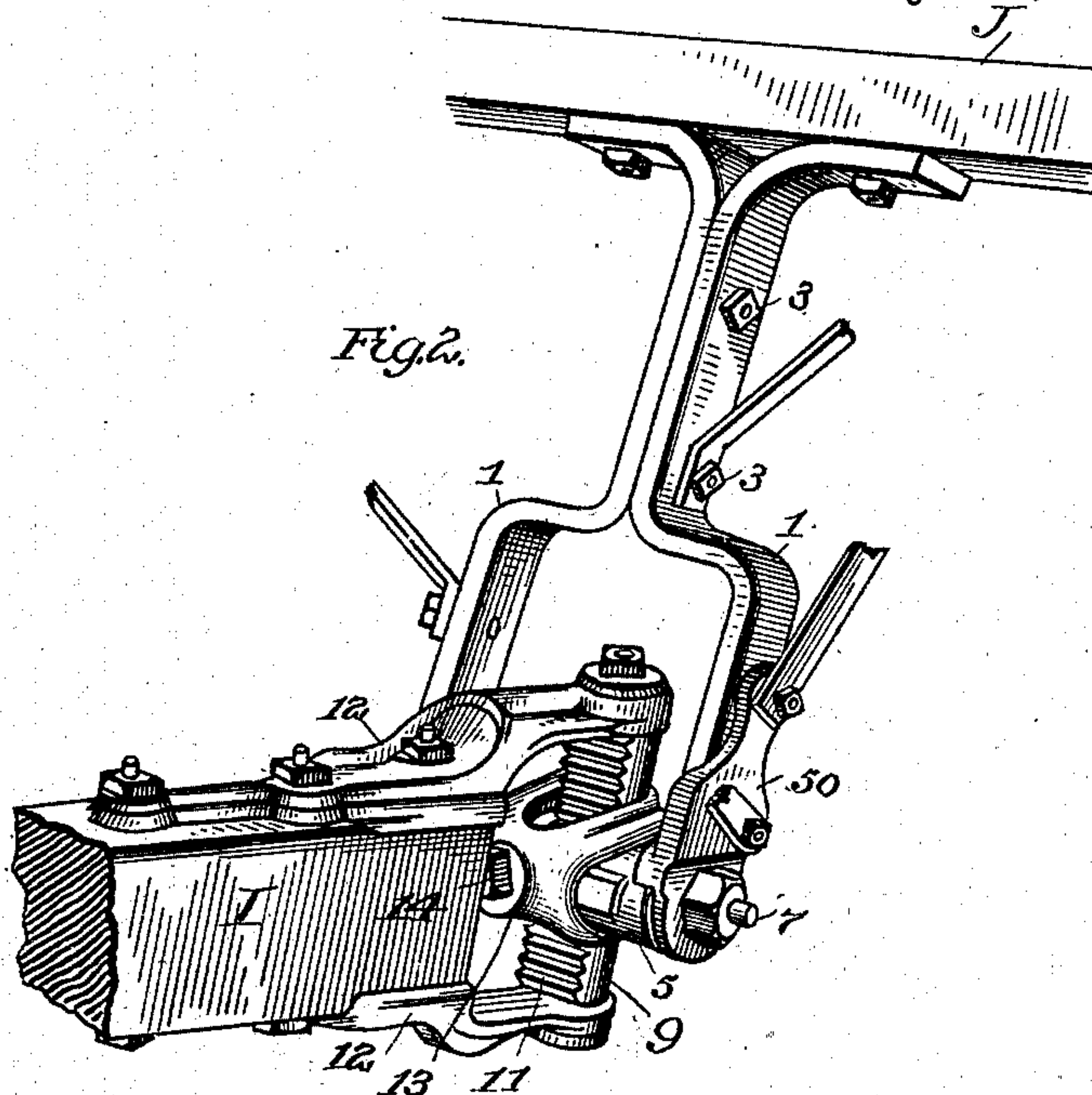
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No. 278,366.

Patented May 29, 1883.



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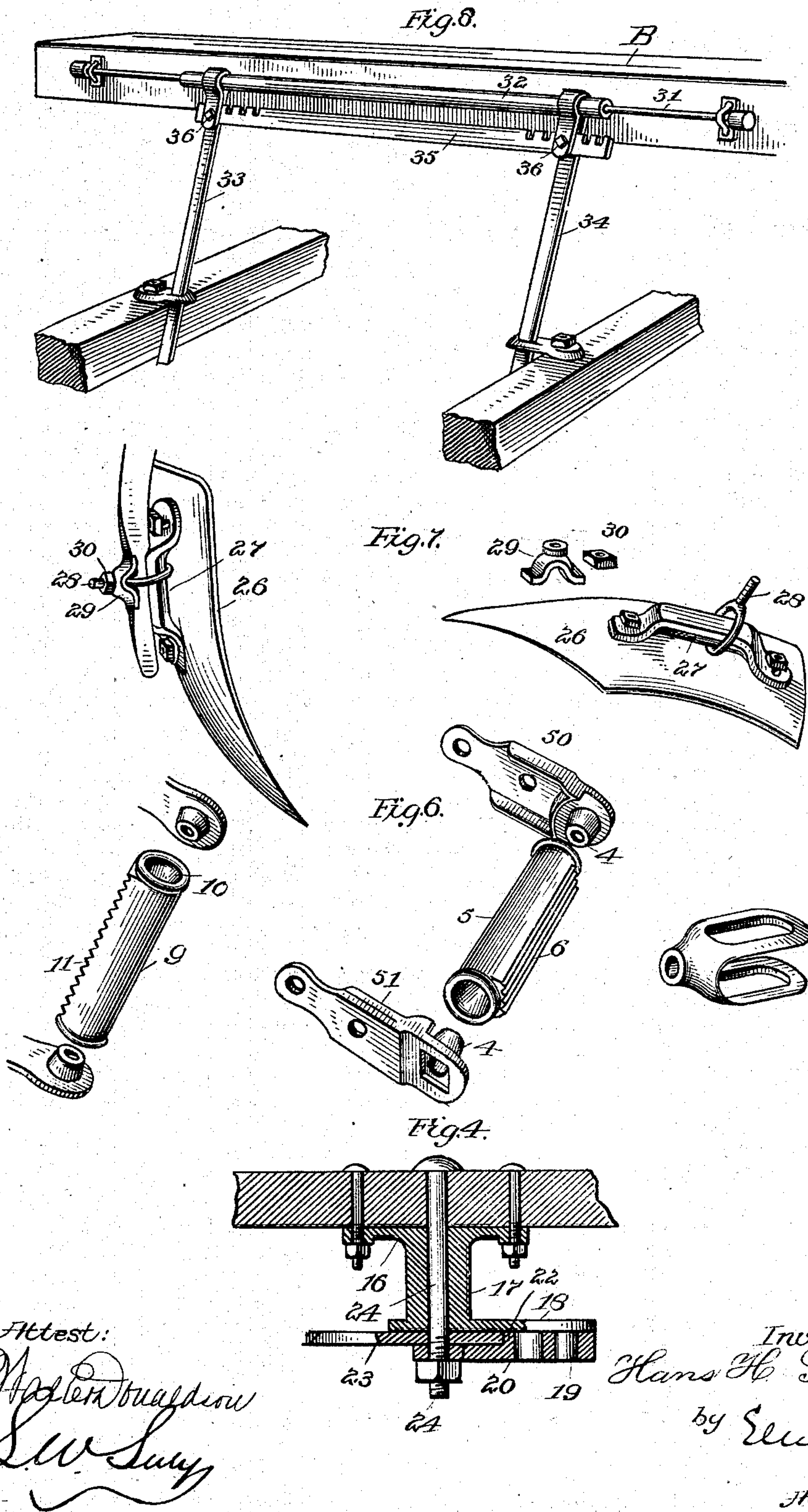
3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

HANS H. SATER, OF DUBUQUE, IOWA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 278,366, dated May 29, 1883.

Application filed February 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, HANS H. SATER, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Cultivators; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to an improvement in cultivators; and it consists, first, in a novel coupling to connect the drag-bar to the frame of the cultivator, in order to permit the shovels to have both a vertical and lateral movement; second, in the peculiar manner of attaching the shovel-arms to the drag-bar; third, in the novel manner of attaching the shovels to their supporting-arms; fourth, in the improved device for spreading the drag-bars laterally; and, fifth, in the draft attachment.

In the general construction my cultivator consists of a pair of carrying-wheels mounted upon a rigid axle, and supporting a frame upon which is mounted the driver's seat, and a pair of levers, by which the elevation of the drag-bars and shovels, properly connected to the frame, is accomplished.

The invention is illustrated in the accompanying drawings, in which Figure 1 is a perspective view; Fig. 2, a separate view of the coupling; Fig. 3, a detail perspective of a portion of the draft attachment; Fig. 4, a section through the drag-bar, showing the attachment of the shovel-arms; Fig. 5, details of the parts composing such attachment; Fig. 6, details of the parts composing the coupling; Fig. 7, a detail of one of the shovels and its attachment to its supporting-arm; and Fig. 8, a separate view of the spreader.

In these drawings, A A are the carrying-wheels, of ordinary construction. B is the main portion of the axle, which is a horizontal wooden beam, having depending arms at its end, preferably of metal, and formed with cylindrical horizontal journals upon their ends for the wheels. Upon this axle is mounted the frame C, having at its rear end the driver's seat D, and extending forward to a point where it is connected to the ordinary tongue. Upon the frame are mounted segmental racks F F, with which engage suitable devices carried by the levers G G, which levers are pivoted upon opposite sides of the frame-work, the longer arms extending backward, so as to

be accessible to the driver. The short arms of the levers are connected by chains H H to the drag-bars I I. Secured to the frame-work, in front of the axle, is a cross-bar, J, and from this cross-bar are suspended arms 1 1 2 2, each pair of such arms forming a portion of one of the coupling devices, and, as such couplings are similar in all respects, only one of them will be described in detail. Referring more particularly to Fig. 2, each of the arms 1 1 is bent at right angles a short distance below the cross-bar, up to which point the arms are in contact and secured together by bolts 3 3. The arms are again bent at right angles, so that a fork is formed, between which is held the couplings. Upon the lower inner end of each of the plates 50 51, secured to the arms of the fork, is a conical or frusto-conical projection, 4, and a perforation extends through these plates and arms and such projections. 5 represents a hollow sleeve, provided on one face with corrugations 6, and having its end formed into conical bearings to fit the projections 4 4. A bolt, 7, passes through the parts when in position, having nuts upon its end fitting within a square countersink on the outside of the arms 1 1, as shown, by which means the sleeve can be tightened on its bearings should it wear loose. This sleeve is held in engagement with a vertical sleeve, 9, having at each end conical bearings 10, similar to those upon the horizontal sleeve, and upon one face horizontal corrugations 11, which engage with those of the horizontal sleeve just described. The ends of the forked standard 12 work freely upon the bearings 10, and are held in position by a bolt passing through the same, and nuts upon the end. The parts are all held in engagement by a link, 13, and set-screw 14, similar to that described in my application for patent filed in the United States Patent Office on the 8th day of January, 1883.

It is evident from this description that the drag-bars can be elevated through the levers and chains described, the horizontal sleeve working in its bearings on the arms 1 1, and at the same time a lateral movement may be given such drag-bars, the arms of the forked standard working on the vertical bearings of the other sleeve.

The second part of my invention relates to the peculiar manner of attaching the shovel-

arms to the drag-bar, in order to permit such arms to yield on meeting an obstruction. To the outside of the drag-bar, and near its end, is rigidly secured a plate, 16, having a central perforated boss or standard, 17, upon the outer end of which is an arm, 18, extending at right angles to it and parallel to the drag-bar. Upon the end of this arm 18 is a pivot, 19. A plate, 20, of the shape shown in Figs. 4, is mounted upon such pivot, and is provided with a long curved slot, 21, and with a triangular shoulder, 22. The shovel-arm 23, at its upper end, is recessed to fit this shoulder, and when the parts are in position the shovel-arm is held between the plate and the arm 18, while a bolt, 24, passes through the drag-bar, the boss 17, the shovel-arm, and the slot 21 in the outer plate, 20. It will now be evident that while the shovel-arm is rigidly secured to the plate 20 such plate can turn upon the pivot, and will slide up and down, by means of its slot, upon the bolt 24, so that the entire arm and the shovel attached to it will yield upon meeting an obstruction of sufficient rigidity, and can be readily put back by the operator without leaving his seat.

I have devised an improved means of connecting the shovel to its arm, which is shown in Fig. 7. To the rear of shovel 26 is bolted a block, 27, the upper end of which is slotted to permit the point of the shovel to be moved laterally, and secured in any position within its range of movement. An eyebolt, 28, is connected to the said block, which is clamped rigidly in place by the nut 29 and the jam-nut 30. It is evident that the shovel may be readily raised and lowered upon the arm by simply loosening the jam-nut, which will allow the shovel and block to be adjusted as desired.

Fig. 8 represents an improved device for adjusting the drag-bars. To the rear side of the axle is secured a rigid rod, 31, and upon this rod is mounted a sleeve, 32. This sleeve is connected to the drag-bars by arms 33 34, the upper ends of which are bent into circular form, so as to surround the sleeve and be braced upon it by bolts, as shown. Between the upper end of the arms and the main portion thereof, which are almost in contact, is held a notched beam, 35, through which the bolts 36 pass. It is evident, then, that by loosening such bolts the arms can be moved lat-

erally and compressed upon the sleeve at any point, the operation effecting the spreading of the drag-bars to any desired extent.

The last portion of my invention relates to an improved draft-attaching device, and is shown in Fig. 3. Upon the front of the axle is pivoted a curved arm or equalizing-bar, 37, to the ends of which are attached chains 38, which pass over drums or rollers 39, secured to the metallic or depending portion of the axle. These chains are connected by the slotted draw-bars 40 to the single-trees 41, and may be adjusted at this point of connection as variations in the draft may require. The draw-bars pass through a metal loop, 42, secured to the cross-bar J of the frame previously described, such loop being provided with a number of holes, by which the height of the single-tree can be adjusted. The ends of the equalizing-bar 37 are also perforated, in order that the end of the chain may be placed nearer to or farther from the center, according to the amount of leverage which each horse properly requires. The bolt 45, preferably having a roller device, passes through two of the perforations of the loop, and upon this roller the slotted draw-bar plays. Brace-rods 46 connect the arms which hold the coupling to the loops and to other portions of the frame, in order to give greater solidity and firmness.

Having thus described my invention, what I claim is—

1. The combination of the axle B, the equalizing-bar, the perforated loops 42, the slotted draw-bars, the chains and drums, and the single-trees.

2. The combination, with the arms 1 1 and the plates 50 51, having the integral cone-bearings, of the horizontal and vertical sleeves connected to the drag-bars.

3. The combination of the drag-bar, the plate 16, the perforated boss, the plate 18, the plate 20, pivoted thereon and having the slot 21, and the shovel-arm rigidly secured to the said plate.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HANS H. SATER.

Witnesses:

ALEX. SIMPLOT,
FRANK W. ALTMAN.