

(No Model.)

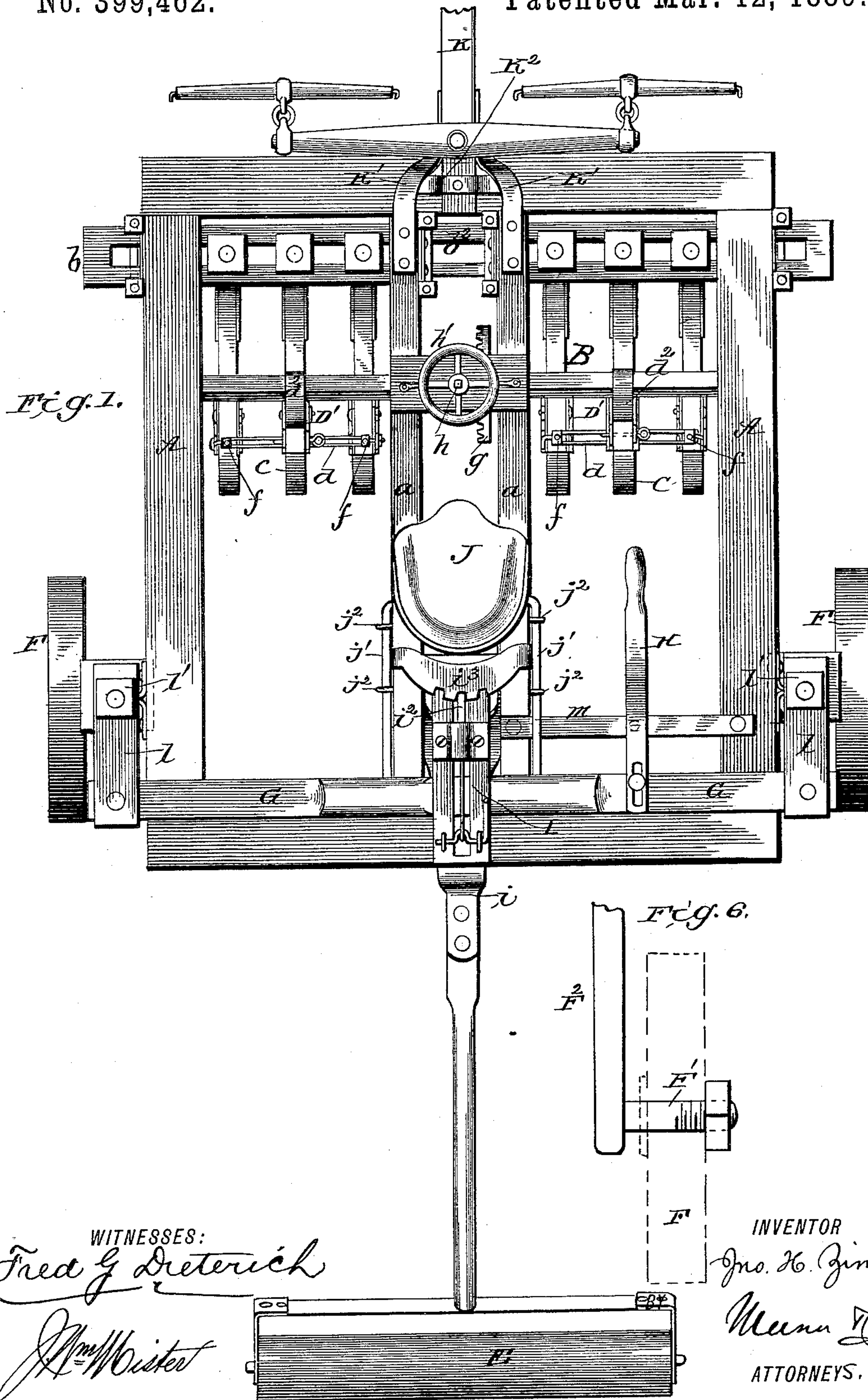
3 Sheets—Sheet 1.

J. H. ZINN.

SULKY PLOW.

No. 399,462.

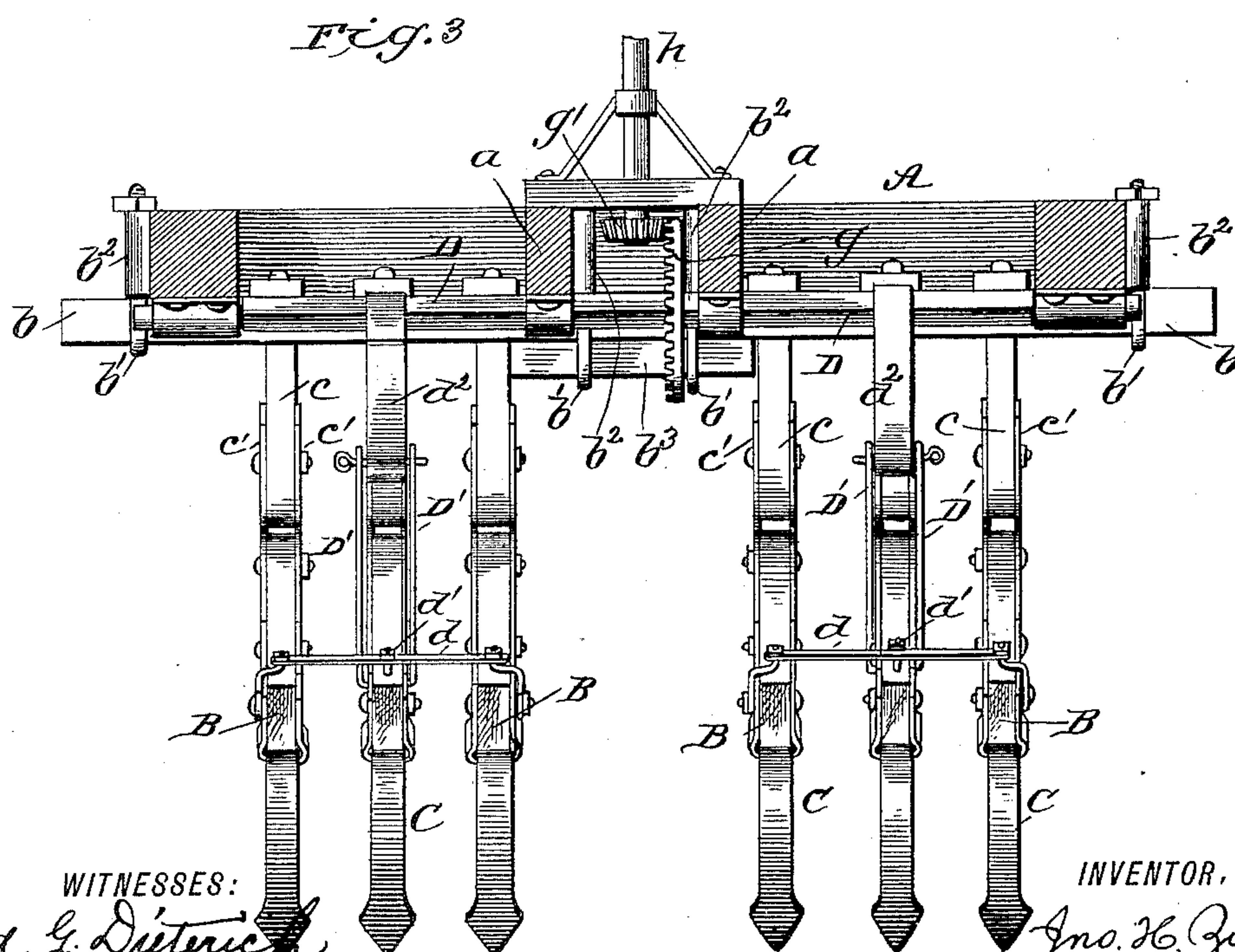
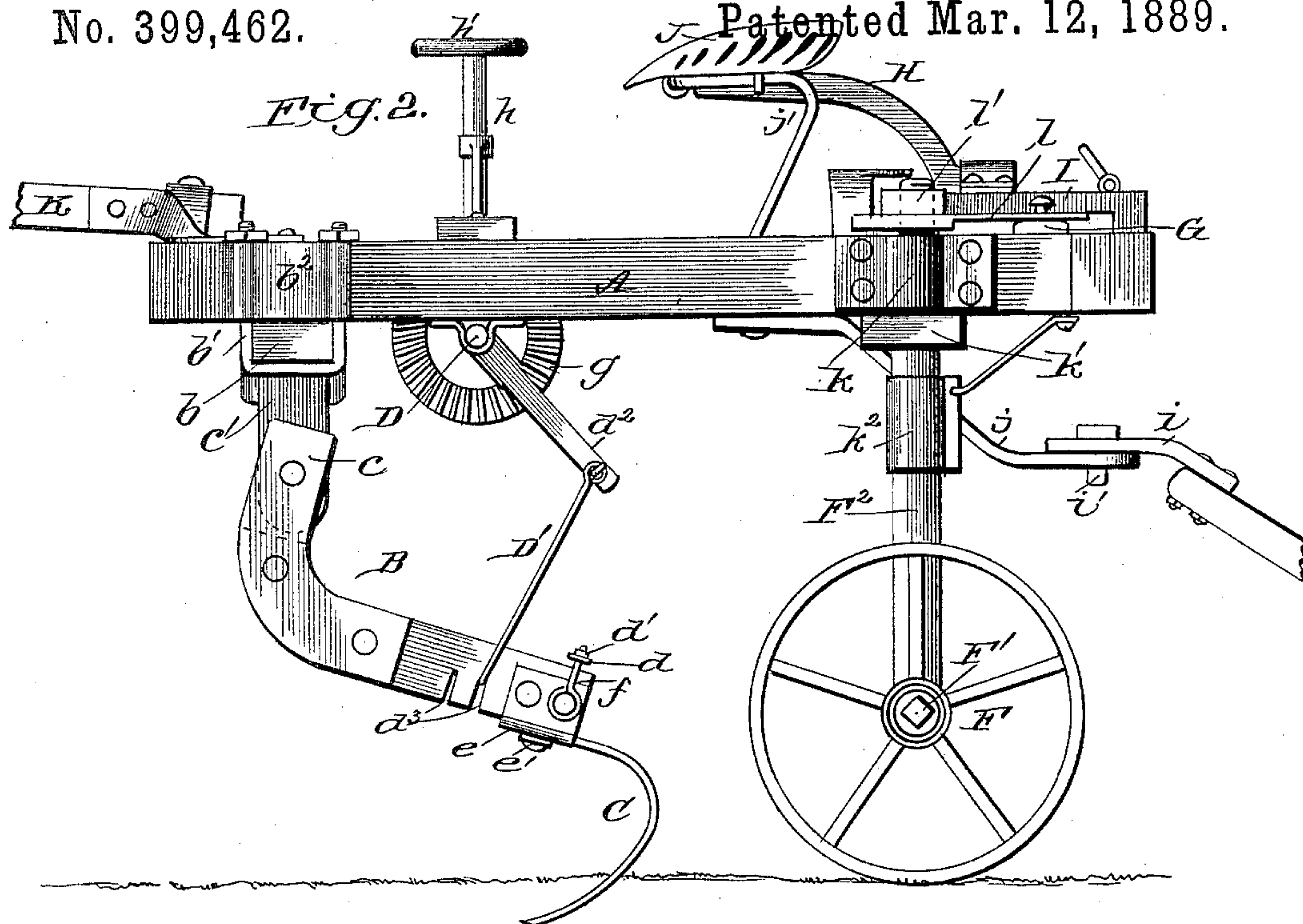
Patented Mar. 12, 1889.



3 Sheets—Sheet 2.

SULKY PLOW.

~~Patented~~ Mar. 12, 1889.



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(No Model.)

3 Sheets—Sheet 3.

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SULKY PLOW.

No. 399,462.

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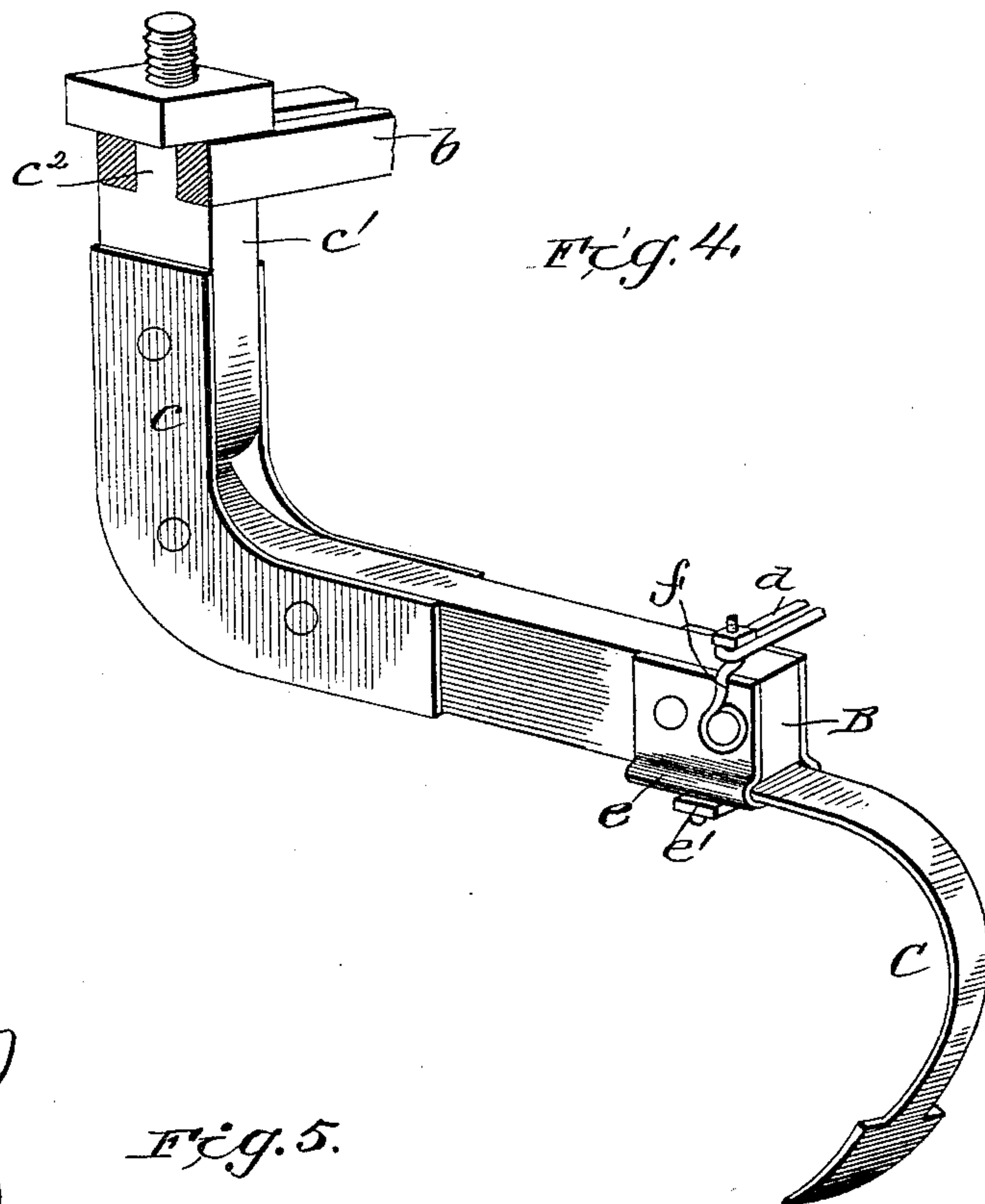


Fig. 4.

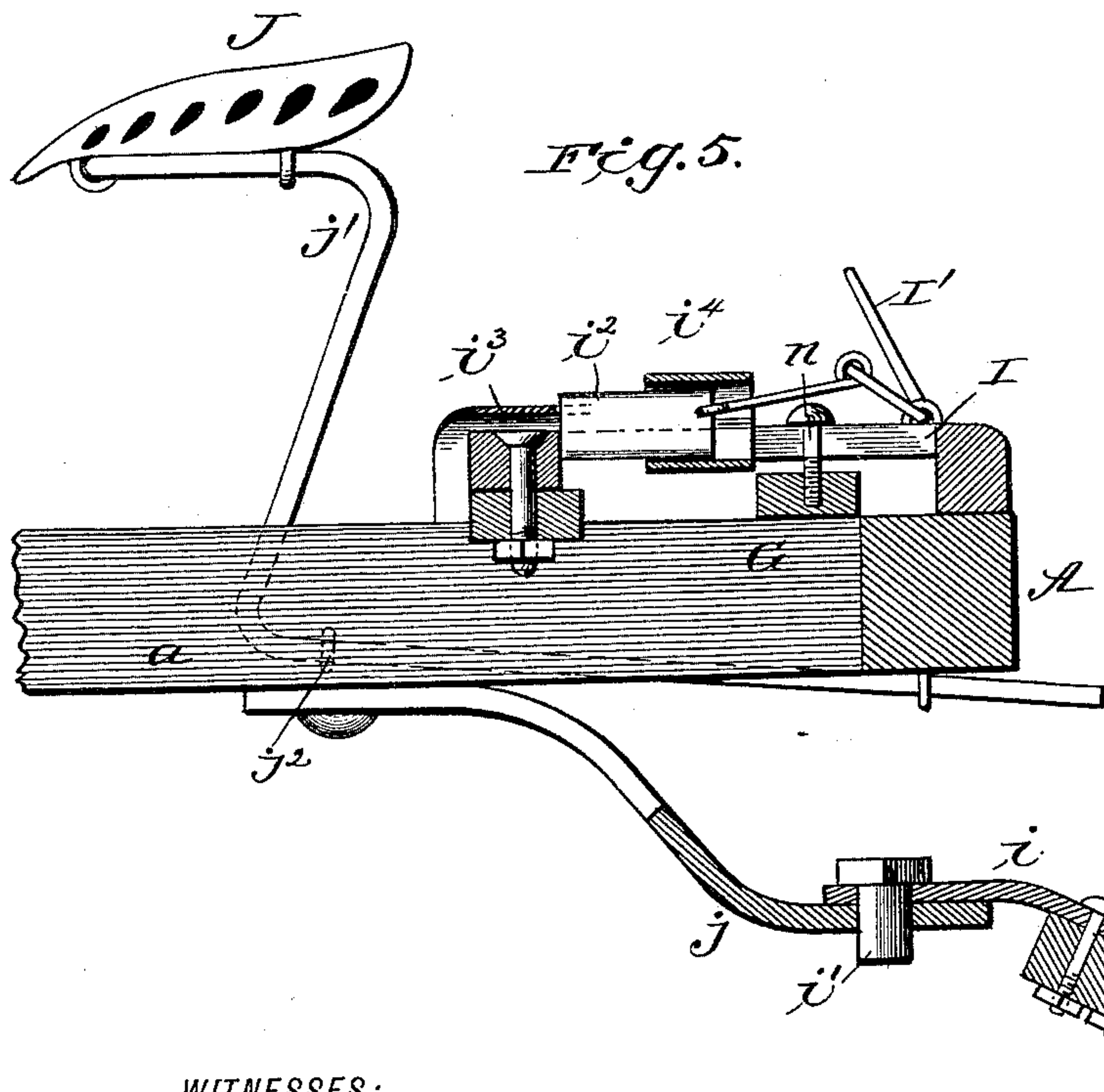


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN HARTZELL ZINN, OF GETTYSBURG, PENNSYLVANIA.

SULKY-PLOW.

SPECIFICATION forming part of Letters Patent No. 399,462, dated March 12, 1889.

Application filed August 3, 1888. Serial No. 281,912. (No model.)

To all whom it may concern:

Be it known that I, JOHN HARTZELL ZINN, of Gettysburg, in the county of Adams and State of Pennsylvania, have invented certain
5 new and useful Improvements in Sulky-Plows, of which the following is a specification.

This invention contemplates certain improvements in sulky or gang plows; and it consists of the sundry combinations of parts,
10 including their construction, substantially as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my invention with parts broken
15 away. Fig. 2 is a side elevation, also with parts broken away; and Fig. 3 is a transverse sectional view of the same, which section is taken in rear of the plow and looking forward. Fig. 4 is an enlarged detail view thereof,
20 showing one of the plow-beams, including the means for suspending or securing it in position, as also its plow and the plow-connecting clip or socket. Fig. 5 is also an enlarged detail view thereof, partly in section and elevation,
25 showing more fully the sliding-seat connection and the roller-tongue or pole connection, including certain other parts. Fig. 6 is a detail view.

In the embodiment of my invention I provide a suitable frame, A, preferably of the
30 construction shown, the same having front and rear and side pieces, and intermediate parallel pieces, *a a*, connecting with the front and rear pieces.

Applied to the frame A are two slotted cross-pieces, *b b*, being confined thereto by staples or keepers *b' b'*, one fitted in a socket, *b²*, at the outside of each side piece and at the
35 inner side of each intermediate piece, *a*. The cross-pieces *b b* rest at their inner ends upon a slotted connecting-piece, *b³*, which is held firmly against said cross-pieces by the staples or keepers securing in position those
40 ends of said cross-pieces.

B B are beams, which are horizontal the greater portions of their lengths, but are curved upward at their forward ends and provided thereat, upon the sides, with plates
45 *c c*, projecting and forming sockets or clips beyond said ends of the beams, which receive and are pivoted to pendants or posts *c' c'*, strung along the slotted cross-pieces *b b*. This

arrangement effects the articulation of the beams B B, so as to permit of the adjustment or raising and lowering of the same, as is required in working the plows. The upper ends
55 of the pendants or posts *c' c'* are formed with tenon-like screw-threaded projections *c² c²*, which are held by nuts in the slots of the cross-pieces *b b*, while the beams B B are connected together by slotted cross-pieces or yokes
60 *d d*, which receive screw-bolts *d' d'*, entering the beams, whereby the beams are adapted to be adjusted at the required interval apart and held parallel to each other.

The rear ends of the beams B B are provided with clips or sockets *e e*, each of which is preferably formed of a single casting, with its lower or bottom portion arranged upon
70 and disposed a short distance from the under side of the beam, while its side portions are applied and held by screw-bolts to the sides of the beam. To one of the socket or clip securing bolts of the outside one of each series
75 of beams (of which two are here shown) is applied an eyebolt, *f*, which reaches up and is nutted to the cross-pieces or yokes *d d*, to effect the holding of the assembled beams of the series bodily together.

C C are the plows or shovels, preferably of
80 the form shown, which are adapted to connect with the sockets or clips *e e*, the upper ends of their shanks being inserted and removably held in said sockets by set or holding
85 screws *e' e'*.

D is a shaft journaled or hung in bearings or boxes applied to the intermediate and side pieces of the frame A, and to which shaft is fitted a beveled gear-wheel, *g*, with which intergears a small beveled pinion, *g'*, secured
90 to the lower end of an upright shaft, *h*, to the upper end of which is applied a hand wheel or lever, *h'*, for its convenient manipulation by the driver or attendant. A suitable pawl-and-ratchet mechanism in practice is applied
95 to the machine to prevent the gearing against movement under the weight of the plow-beams when elevated. The shaft D is provided with arms *d² d²*, which are adjustably
100 connected by adjusting screw bolts or pins, and apertures in the arms with stirrups or bails D' D', through eyes in the upper ends of the arms of which are passed said screws, and which take or fit under and in gains or

notches $d^3 d^3$ in the under side of the beams B. Two or more notches or gains $d^3 d^3$ are supplied to each beam B to effect an adjustable connection between the bails or stirrups 5 $D' D'$ and said beams. It will be seen that by properly manipulating the hand or lever wheel h' the gearing $g g'$, with the shaft D, will be revolved, which will effect the required movement of the arms $d^2 d^2$, which in 10 turn will operate the bails or stirrups $D' D'$, effecting the lifting or lowering of the beams B with their plows or shovels, according to the direction in which the hand or lever wheel is turned.

15 Hung in rear of the plows or shovels is a roller, E, preferably of the construction shown, and having connection with the frame A. This connection is effected by means of a plate, i , bolted to the pole or tongue of the 20 roller and deflected or inclined downward and forward from a horizontal line, and provided, it may be, as in the present instance, with a removable wooden pin or plug, i' , which enters an apertured step-like plate, j , 25 bolted to and extending rearward and downward from the under side of the intermediate pieces, $a a$, of the frame A. This secures a swiveling connection between the roller tongue or pole and the carrying-frame just 30 referred to, to enable the roller to readily accommodate itself to the line of travel of the machine or plows.

The rear part of the frame A is mounted or carried upon rimmed spoked wheels F, which 35 are borne by short axles or shafts F' , whose spindles or vertical portions F^2 extend up through bearings or eyes $k k$, secured to the sides of the frame A. Upon said spindles, below said bearings or eyes, are applied nuts 40 k' , bearing against the latter and limiting or properly disposing the spindles therein.

$k^2 k^2$ are bracing collars or sleeves, up through which also pass the spindles or vertical portions F^2 of the axles or shafts F' , 45 which collars or sleeves are connected by rods or arms to the under side of the rear end of frame A. Fitted upon the spindles or vertical portions F^2 of the axles F' , near their extreme upper ends, so as to turn or actuate the 50 same, are short plate-like levers $l l$, which are held upon said spindles against upward displacement by nuts $l' l'$, screwed upon said spindles. These short plate-like levers $l l$ are connected by means of a link or bar, G, to 55 which is connected and which is actuated by means of a hand-lever, H, pivoted or fulcrumed upon a conveniently-disposed bar or support, m , secured to the frame A. By the movement of the hand-lever H in the required 60 direction the connecting bar or link G is so acted upon as to effect the movement of the levers $l l$, which in turn actuate or turn the spindles F^2 with the axles F' and wheels F, whereby the line of travel of the machine can 65 be changed at pleasure and the guiding of the same be effected according to the direc-

tion in which it is desired the machine shall move.

I is a slotted plate-like lever, which is pivoted at its forward end to a cross-piece secured 70 upon the parallel pieces $a a$ of the frame A, while in its slot works a headed projection or screw, n , projecting upward from the link or bar G, thereby effecting a connection between said lever I and link or bar G. The lever I 75 has applied to its upper side a pawl or detent, i^2 , which is adapted to engage with a notched segment or rack, i^3 , secured to the sides of the parallel pieces $a a$ and bridging over the forward pivoted end of the lever I. This pawl 80 or detent i^2 slides in an open-ended closure or tube, i^4 , which consists, preferably, of two plates, each forming a semi-tube, and having their meeting portions extended into flanges or wings placed parallel and in contact with 85 each other, and bolted or screwed together and to the upper surface of the lever I, the lower semi or half tube of said closure or tube resting in the forward portion of the slot of said lever. The pawl or detent i^2 is actuated 90 by a supplementary or cranked lever, I' , linked thereto and fulcrumed upon the lever I, which supplementary lever also serves as a convenient means for the manipulation of the lever I, the levers requiring successive actuation. 95 The pawl or detent, as is obvious, is to effect the retention of the lever I at its required point of adjustment.

J is the driver's seat, which is secured or mounted upon a proximate bail-like stepped 100 spring or support, j' , the seat being applied to the upper step or horizontal portion thereof, while the arms of the lower horizontal portion thereof are passed through and supported in staples or keepers $j^2 j^2$, applied to the sides 105 of the parallel pieces $a a$ of the frame at its rear end. This arrangement permits of the adjustment of the seat either forward, balancing the tongue as is desired when the machine is on the road, or rearward to partly 110 take the weight off the horses' or team's neck when the plows are at work.

K is the draft pole or tongue, which is provided with arms K' , formed of plates with their forward ends bolted or fastened to the 115 sides of the tongue or pole near its rear end, and extended laterally outwardly and then rearwardly. The rearward-extended portions of the arms K' are strengthened or braced by a clip-like plate, K^2 , fastened to the 120 tongue or pole, which arms are provided with series of apertures to receive the securing-bolts for its attachment to the frame A.

Having thus fully described my invention, what I claim, and desire to secure by Letters 125 Patent, is—

1. The combination, with the carrying-frame having the longitudinally-slotted bar applied thereto, of the pendants or posts having tenon-like projections fitting in the 130 slot of said bar and provided with screws fitted with nuts, and the plow-beams provided

at their inner ends with socket-forming plates articulated or pivoted to said pendants or posts, substantially as set forth.

2. The combination, with the plow-beams 5 and the plows, of the clips secured to said beams at their outer or rear ends, the slotted cross-bars connecting said beams, and adjusting-screws to effect the holding of both the shanks of the plows and the cross-bars, 10 substantially as specified.

3. The combination, with the carrying-frame, of the plow-beams applied thereto, the slotted bar or yoke *d*, adjustably securing said beams, the sockets or clips *e*, holding 15 the plow-shanks, and eyebolts *f*, receiving bolts from said beams and connecting with said slotted bars or yokes *d*, substantially as and for the purpose described.

4. The combination, with the carrying-frame 20 provided with plows, of the roller having its tongue or pole provided with a de-

flected or angled plate having a pin or stud engaging with an apertured step-like plate applied to the carrying-frame, substantially as set forth.

5. The combination, with the carrying-frame, of the wheels borne by axles having spindles applied to said frame and provided with levers connected or linked together, a hand-lever for actuating the link or connect- 30 ing medium between the aforesaid levers, the pawl or detent engaging with a ratchet positioned upon the carrying-frame, which pawl or detent is disposed to move edgewise in a guide or clip secured upon parallel bars 35 or pieces of the frame, and which pawl or detent is actuated by a crank-lever linked thereto, substantially as set forth.

JOHN HARTZELL ZINN.

Witnesses:

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