

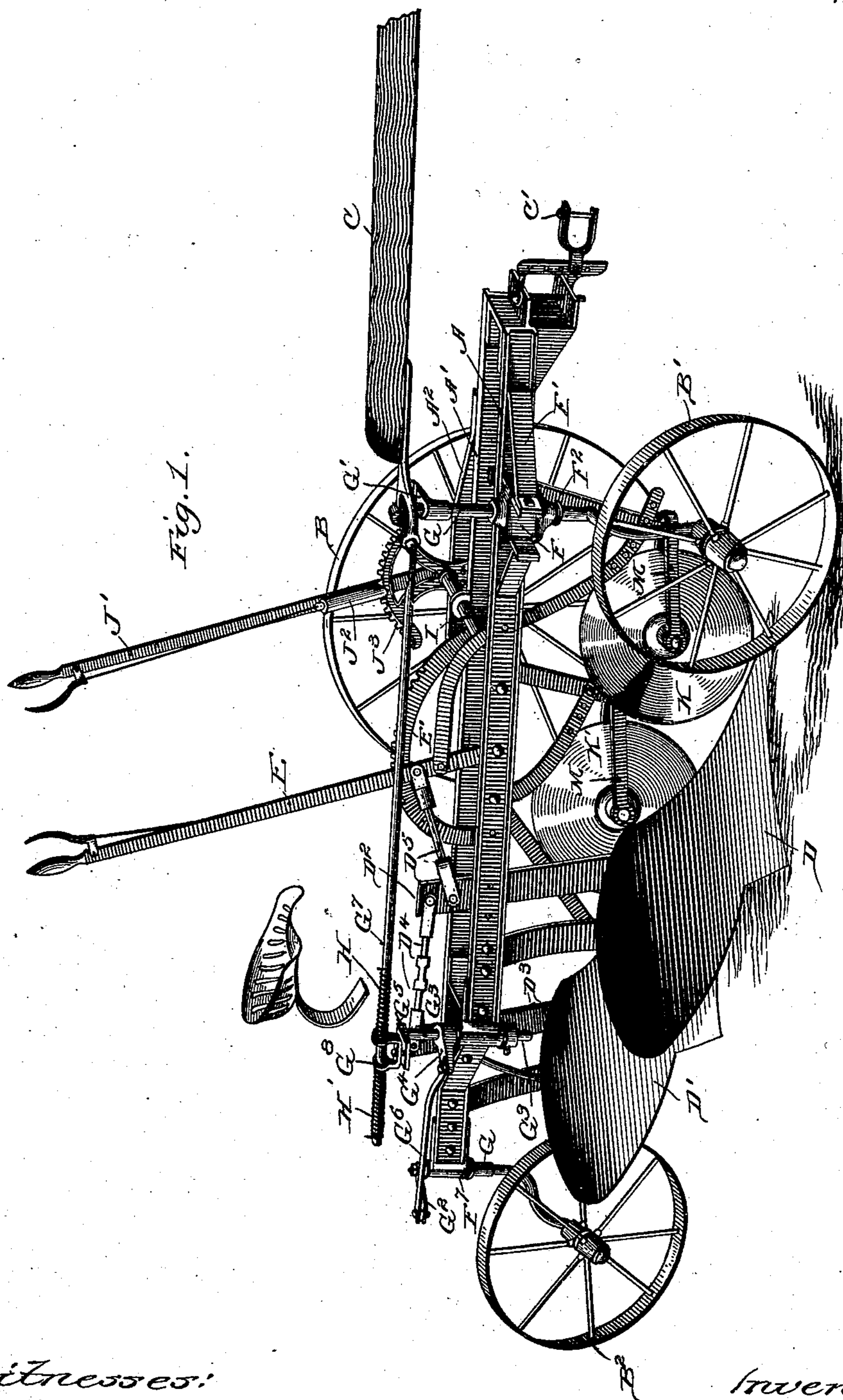
(No Model.)

2 Sheets—Sheet 1.

R. S. TYLER  
PLOW.

No. 548,732.

Patented Oct. 29, 1895.



Witnesses:  
Henry D. Fisher.  
W. J. Downing

Inventor:  
Ralph S. Tyler  
by Miles & Brune, attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

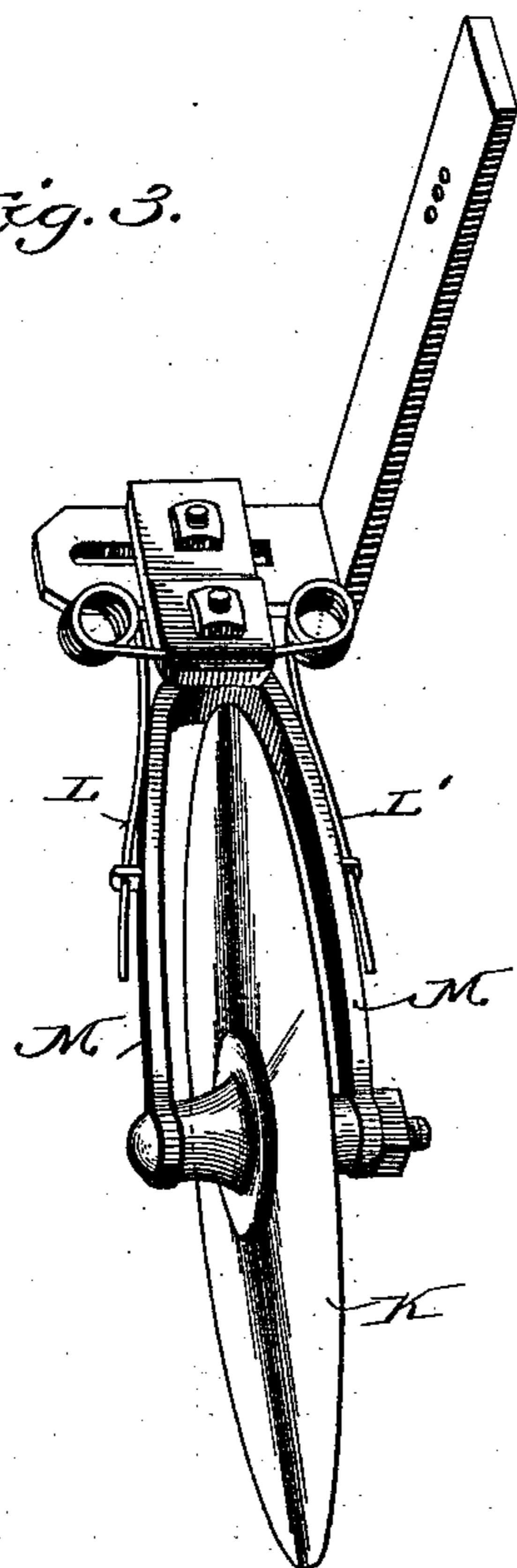


Fig. 2.

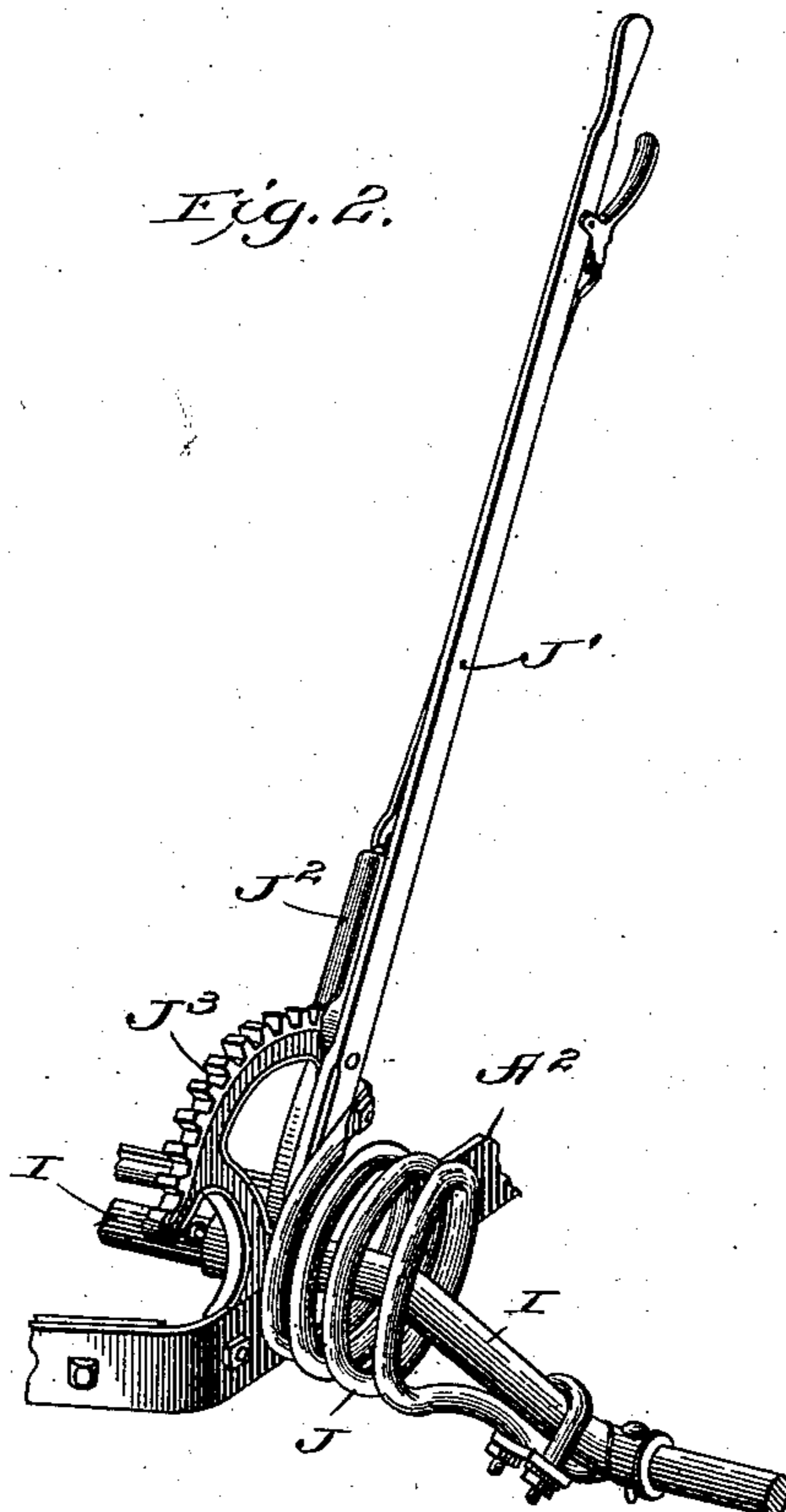


Fig. 4.

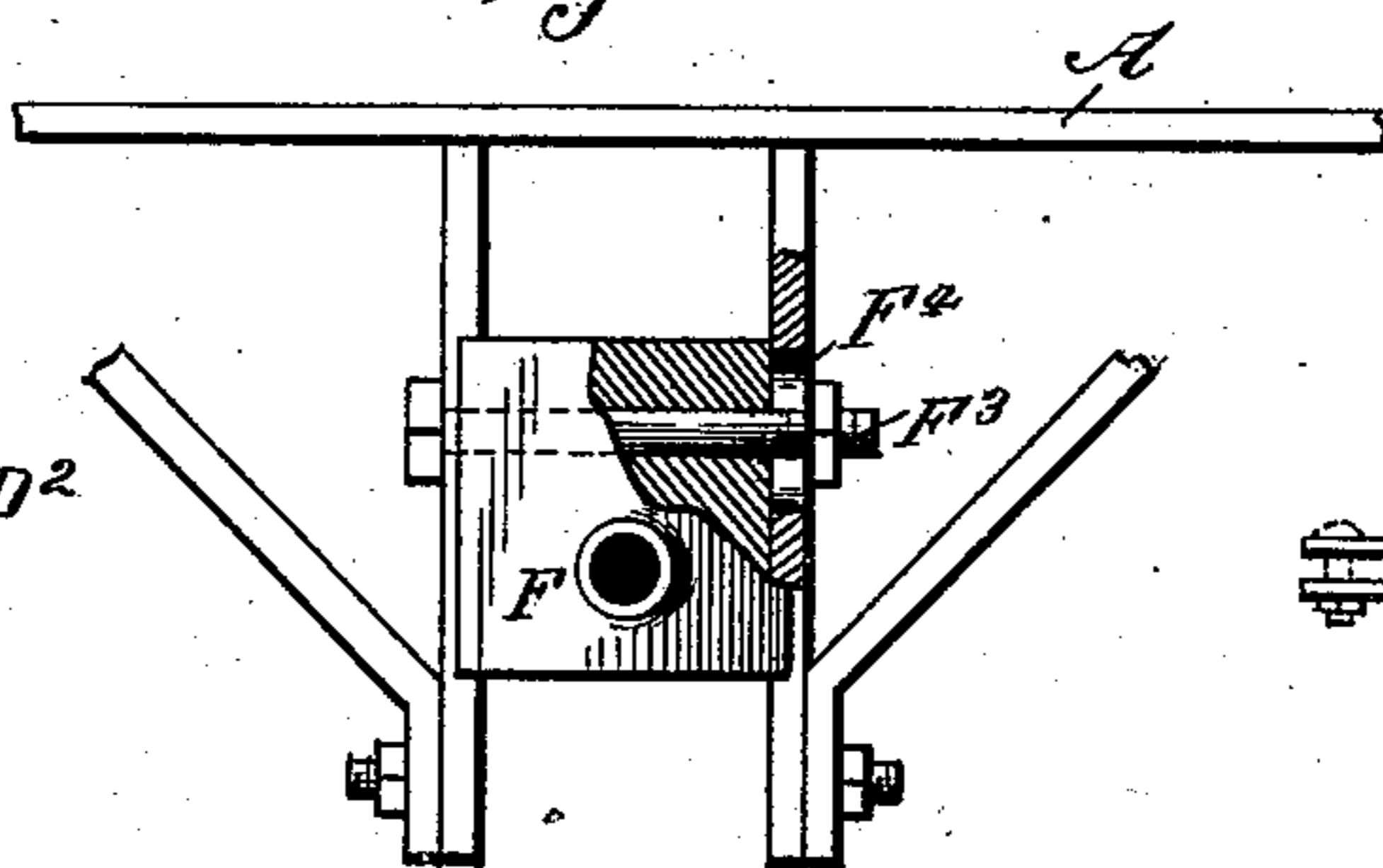


Fig. 5.

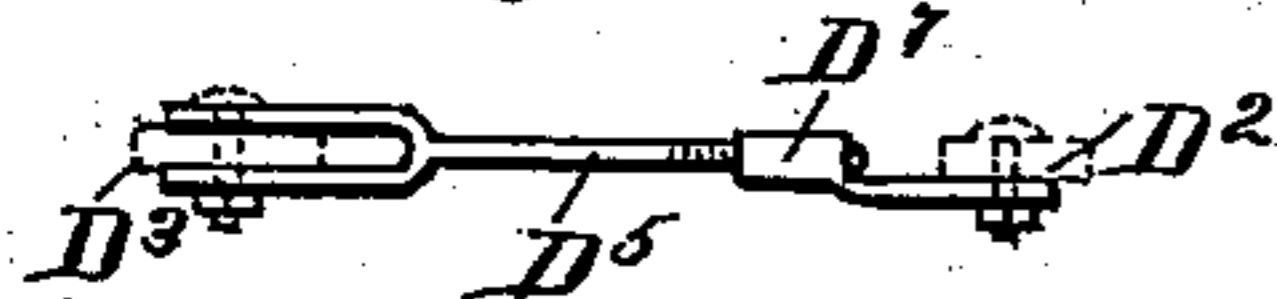


Fig. 6.



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# UNITED STATES PATENT OFFICE.

RALPH S. TYLER, OF PEORIA, ILLINOIS.

## PLOW.

SPECIFICATION forming part of Letters Patent No. 548,732, dated October 29, 1895.

Application filed April 5, 1895. Serial No. 544,558. (No model.)

*To all whom it may concern:*

Be it known that I, RALPH S. TYLER, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Plows, of which the following is a specification.

Among the objects of this invention are, to provide for conveniently changing the relative height of different plows in a gang, to provide for adjusting the pitch of the plows and their height with reference to the wheels with more accuracy than is possible with usual devices, to avoid transmitting lateral horse motion to the plows, to prevent lateral swinging of the colter when out of the ground without impairing its adjustability while acting therein, to provide for lateral bodily adjustment of the furrow-wheel to the end that different widths of furrow may be cut while using the same frame, to provide for vertical adjustment of the frame-supporting wheels, whereby wear at the bottom of the plows may be compensated.

In the drawings, Figure 1 is a perspective view showing a gang-plow provided with my novel devices. Fig. 2 is a perspective view illustrating the means whereby the land-wheel is allowed to rise automatically without raising the plows, and whereby the normal distance of its lowest point from the frame may be varied at will. Fig. 3 shows the devices for controlling the horizontal swinging of the colters. Figs. 4, 5, and 6 show other details, hereinafter set forth.

In the figures, A A' A<sup>2</sup> are bars united and braced to form a rigid frame, and B B' B<sup>2</sup> are land and furrow wheels supporting the frame, which is guided by a tongue C and drawn by attaching to a suitable device at C'.

D D' are plows supported from the frame and having their standards D<sup>2</sup> D<sup>3</sup> connected at their upper ends by a rod D<sup>4</sup>, made in two parts, joined by a turnbuckle D<sup>6</sup>, Fig. 6, and having its ends pivoted to the standards, respectively. The two parts of the rod are oppositely threaded, and hence by turning the turnbuckle the upper ends of the standards may be drawn together or pushed apart, whereby the plows are "leveled." One of the standards is also connected by a two-part rod D<sup>5</sup> to the usual adjusting-lever E, whose pawl

engages a toothed segment E'. One part of the rod D<sup>5</sup> is threaded and screwed into a nut D<sup>7</sup>, fixed to the other part. By means of this adjustment the plows may be given any height without placing the lever in an inconvenient position, for if the lever be set in the most advantageous position the plows may be brought to the desired height without changing that position, and should it happen at any time that changing the pawl from any notch to the next does not give the precise height desired that height may be readily secured by slight adjustment of the rod. It is also to be noted that this construction does not permit accidental variation in adjustment, for no adjustment is possible until one end of the rod has been detached from the lever or the standard.

The furrow-wheel B' is mounted in a block G, sliding toward and away from the line of the plow in a way formed by brackets F', fixed to the frame, and is locked in any desired position by means of a bolt F<sup>3</sup> passing through the block and through slots F<sup>4</sup> in the brackets. Both this wheel and the rear furrow-wheel E<sup>2</sup> are provided with shoulders to receive the downward pressure of the frame, and between the frame and the shoulders are interposed loose washers F<sup>7</sup>, which may be removed from time to time as the plows wear, in order that the lower faces of the plows may be at all times in a plane tangent to the wheels at their lowest points.

The shafts or axes G of both furrow-wheels project above the frame and are provided, respectively, with rigid arms G' G<sup>2</sup>. An intermediate shaft G<sup>3</sup> bears arms G<sup>4</sup> G<sup>5</sup>, the former connected by a rod G<sup>6</sup> to the arm G<sup>2</sup>. A rod G<sup>7</sup>, positively connected to the arm G', runs rearward and slides in a bearing G<sup>8</sup>, pivoted upon the arm G<sup>5</sup>. The sliding is resisted by springs H H', coiled about the rod upon opposite sides of the bearing, and thus a yielding connection is formed between the arms G' and G<sup>2</sup>. The tongue is connected with the arm G', and evidently its slight lateral movements or "horse motion" are taken up by the two springs.

In plows of different construction the bearing G<sup>8</sup> may be placed upon the arm G<sup>2</sup>, the parts G<sup>3</sup> G<sup>4</sup> G<sup>5</sup> G<sup>6</sup> being omitted. They are here introduced because in a machine of this

particular design it is not convenient to connect the arms  $G'$   $G^2$  directly.

The axle I of the land-wheel is revolubly mounted in suitable bearings upon the frame, 5 and its wheel-carrying end is at one side of or eccentric to the line of the main portion, and hence if the axle be rotated the frame is raised or lowered between limits separated by twice the eccentricity. A heavy spring J is 10 coiled about the axle with one end fixed thereto and the other fixed to a lever  $J'$ , swinging upon an axis coinciding with that of the main portion of the axle. The lever is locked in any desired position by the usual 15 pawl  $J^2$  and segmental rack  $J^3$ , the latter fixed to the frame. The normal position of the lever is such that the outer end of the axle is not in the vertical plane of the main portion, and if the lever be moved from this 20 position the frame will necessarily be raised or lowered by the torsional movement of the spring. When it reaches the desired height the pawl is allowed to engage, and this height then remains the normal height until the 25 lever is again moved. With ordinary constructions, when the land-wheel passes over some slight obstruction or elevation, the plows are raised, making the bottom of the furrow uneven, or are even thrown out of the ground; 30 but with the arrangement just described the wheel reacting against the main portion of the axle with a leverage equal to the horizontal distance between the two portions of the axle, flexes the spring, rocks the axle, passes over 35 the obstacle, and is returned to its normal position by the spring, all while the plow moves forward without deviation. The result is a furrow of uniform depth, with reference to the general surface passed over, diminution of jar and smoother appearance of the 40 completed work.

The rolling colters  $K$   $K'$  are, as usual, borne at one side of a vertical axis of rotation, but instead of being allowed to flop or swing freely 45 from side to side when not in the ground they are held by springs arranged in any suitable manner to offer yielding resistance to such swinging and of such strength as to hold the colters securely in line when out of the 50 ground, but to offer no serious resistance to the ordinary swing of the same when in operation. For illustration, I have shown in Fig. 3 springs  $L$   $L'$ , secured to the non-revoluble support of the colter and extending out 55 alongside the colter-fork M.

What I claim is—

1. The combination with a wheeled frame and two plows supported therefrom, of a rod of adjustable length connecting the free upper 60 ends of the plow standards, of an adjusting lever pivoted to the frame and a rod of adjustable length connecting said lever with one of said standards, substantially as set forth.

2. The combination with a wheeled, plow-supporting frame, of a plow supported thereby, and a two-part rod having its ends pivoted, respectively, to the top of the plow standard and to the usual adjusting or raising lever, one part of the rod being provided with a non-revoluble nut and the other part 70 having a threaded end working in said nut, substantially as set forth.

3. The combination with a plow supporting frame, of front and rear furrow wheels having vertical shafts mounted in bearings on 75 said frame and each provided with a lateral arm, a rigid rod pivoted to one arm to be moved longitudinally thereby, and yielding connections arranged to transmit to the second arm the pull and thrust of said rod. 80

4. The combination with a plow supporting frame, of front and rear furrow wheels having their vertical shafts mounted in bearings thereon and each provided with a lateral arm, a guiding tongue or pole connected with the 85 shaft of the front furrow wheel by devices compelling the shaft to rotate with the swinging of the tongue, a rigid rod arranged to transmit to one arm, through suitable connections, the motion of the other, such connections consisting in part of springs which 90 yield in transmitting the movement.

5. The combination with the frame provided with the laterally projecting brackets forming a horizontal way, of the bearing 95 block sliding in said way, means for locking the block against such sliding, and the furrow wheel having its shaft revolubly mounted in said block, substantially as set forth.

6. The combination with a suitable colter support and a colter fork having an approximately vertical shaft mounted in said support, of a spring arranged to yieldingly resist the swinging of said fork and to return it to its normal position when so swung. 105

7. The combination with a plow supporting frame, of an axle revolubly mounted in suitable bearings thereon and having its wheel-bearing end portion out of line with its body portion and normally at one side of the vertical plane of the latter, and a spring arranged to yieldingly resist the movement of said end from such normal position. 110

8. The combination with a plow-supporting frame and an axle revolubly mounted thereon 115 and having its wheel supporting end out of line with its main portion, an axle-rocking lever pivoted to swing in a plane transverse to the axle, and a spring connecting a point of said lever with a point of said end and 120 forming the sole connection between the two, substantially as set forth.

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Witnesses:

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GEO. W. ROTH.