

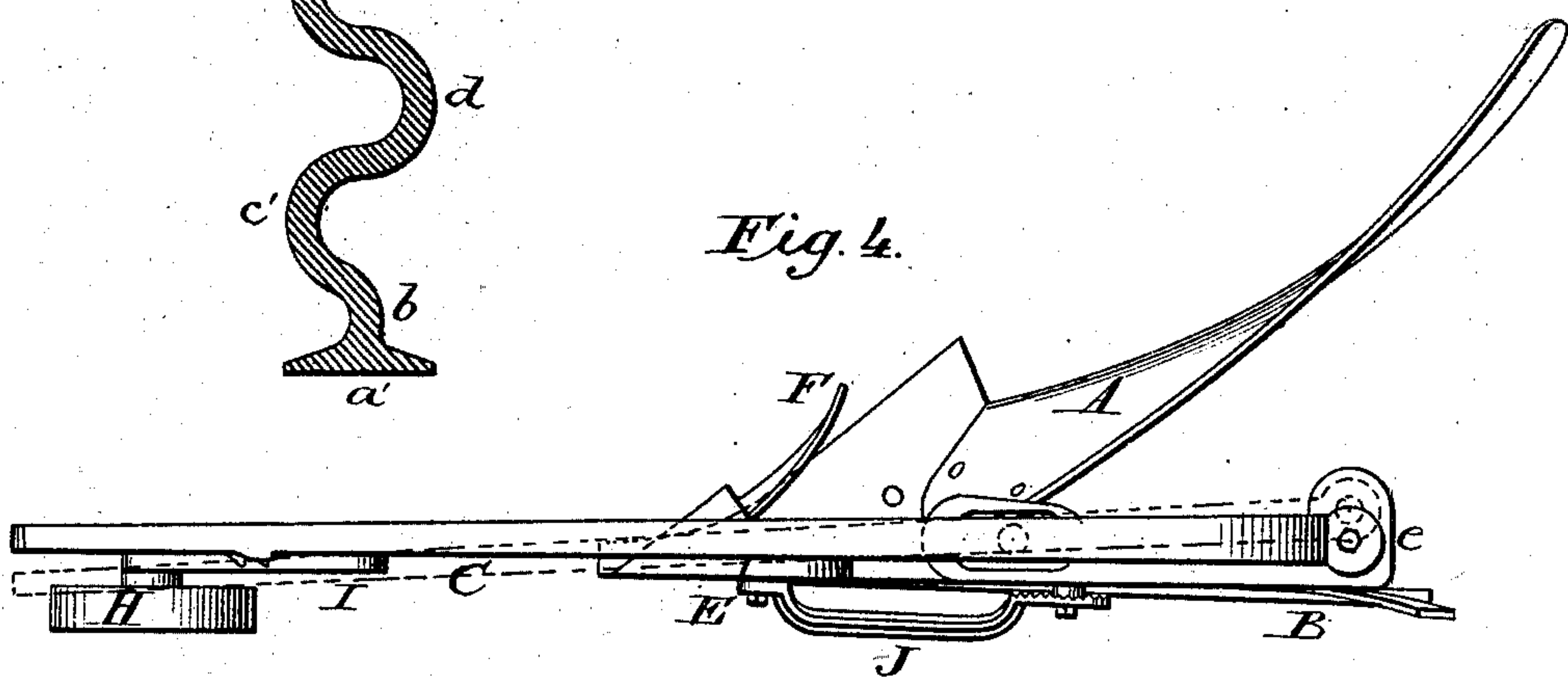
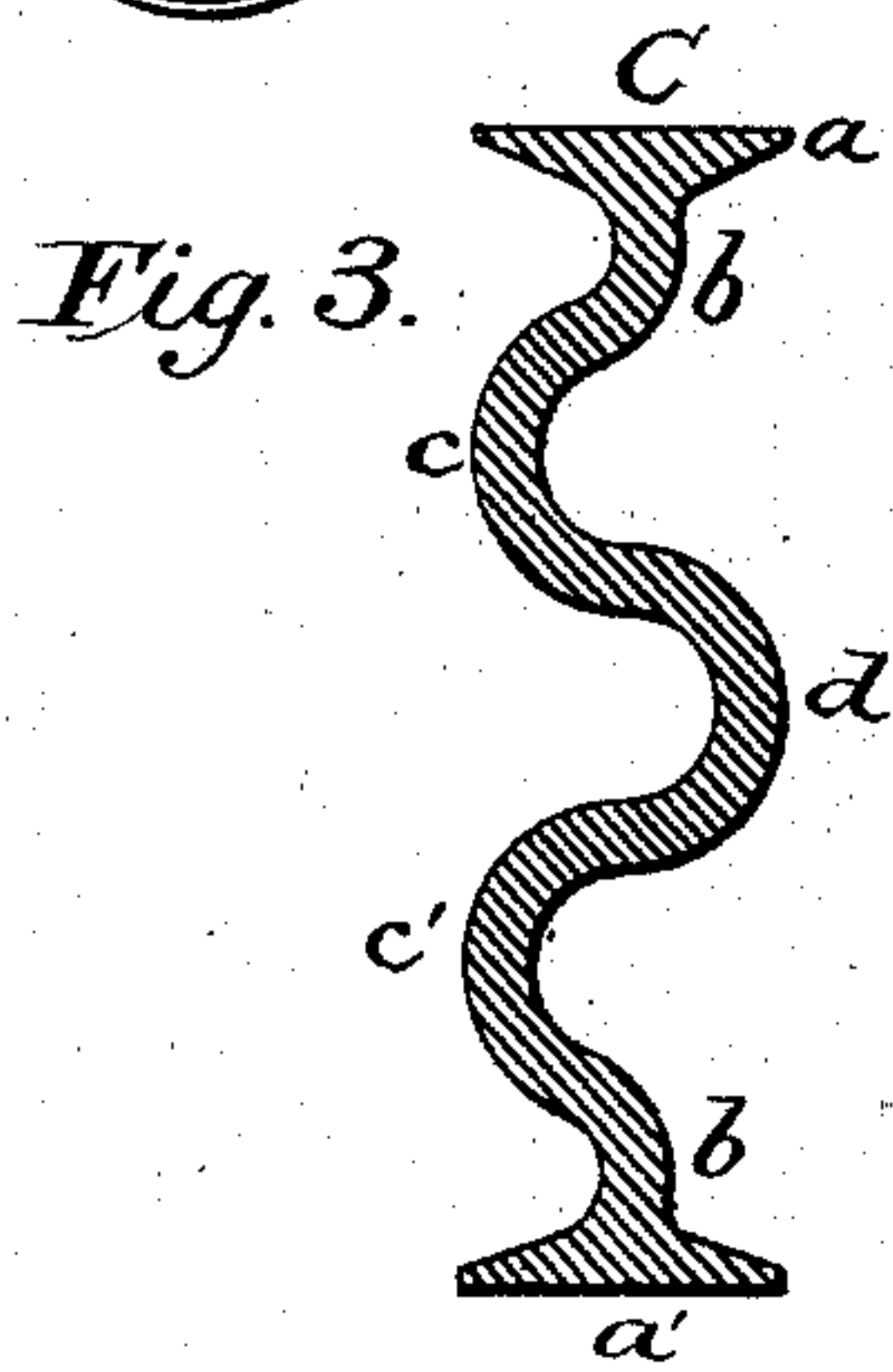
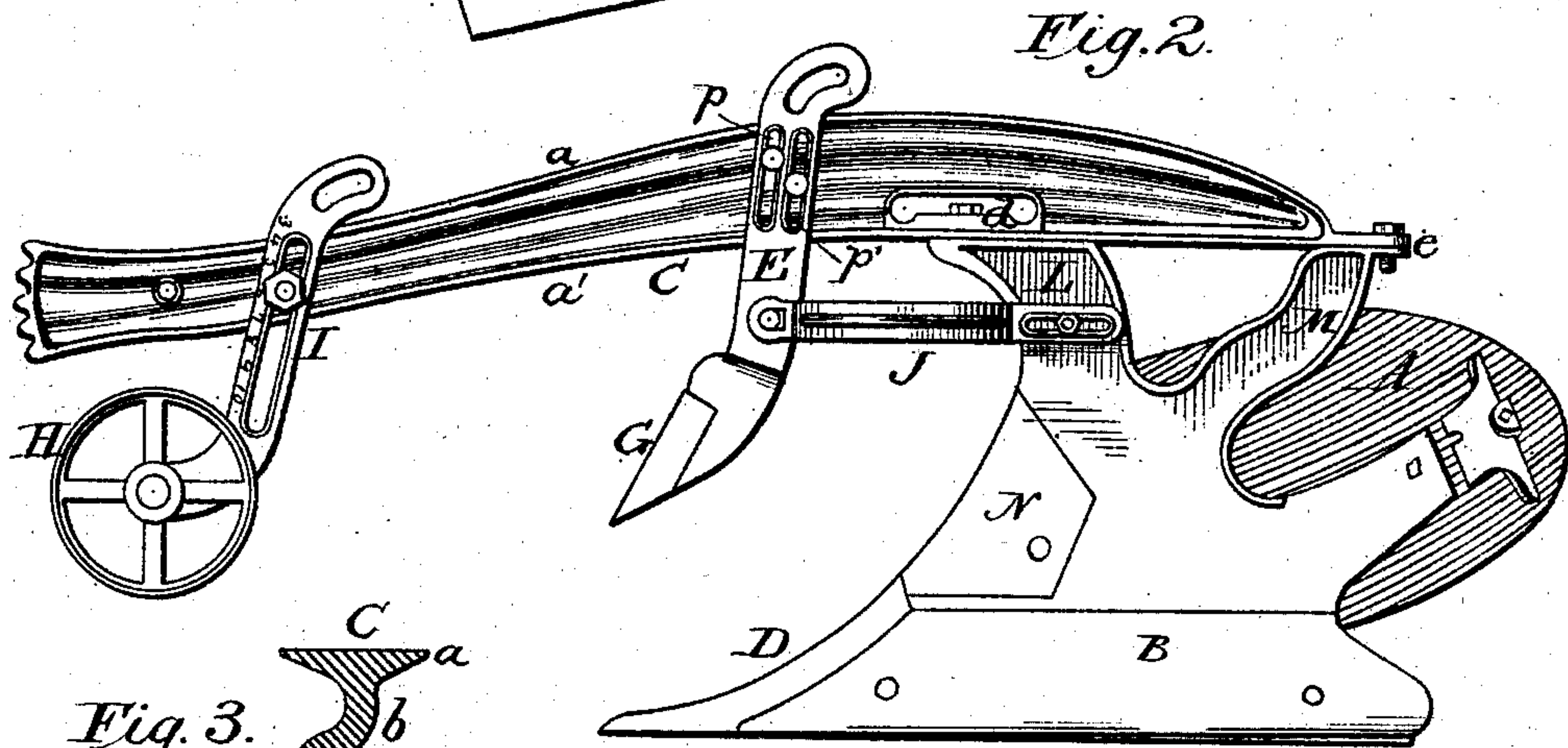
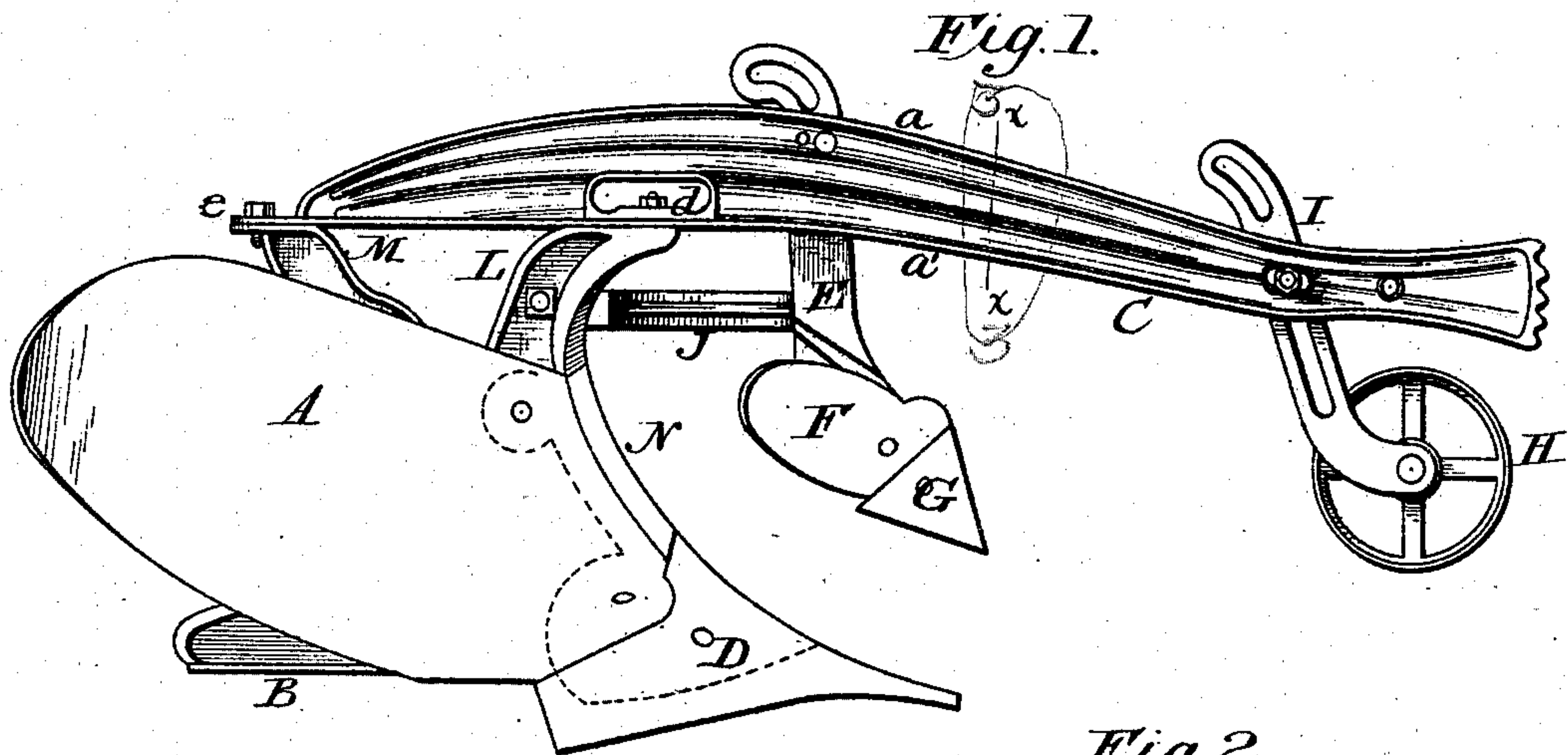
(No Model.)

2 Sheets—Sheet 1.

J. S. & E. C. ROBINSON.
PLOW.

No. 252,139.

Patented Jan. 10, 1882.



WITNESSES

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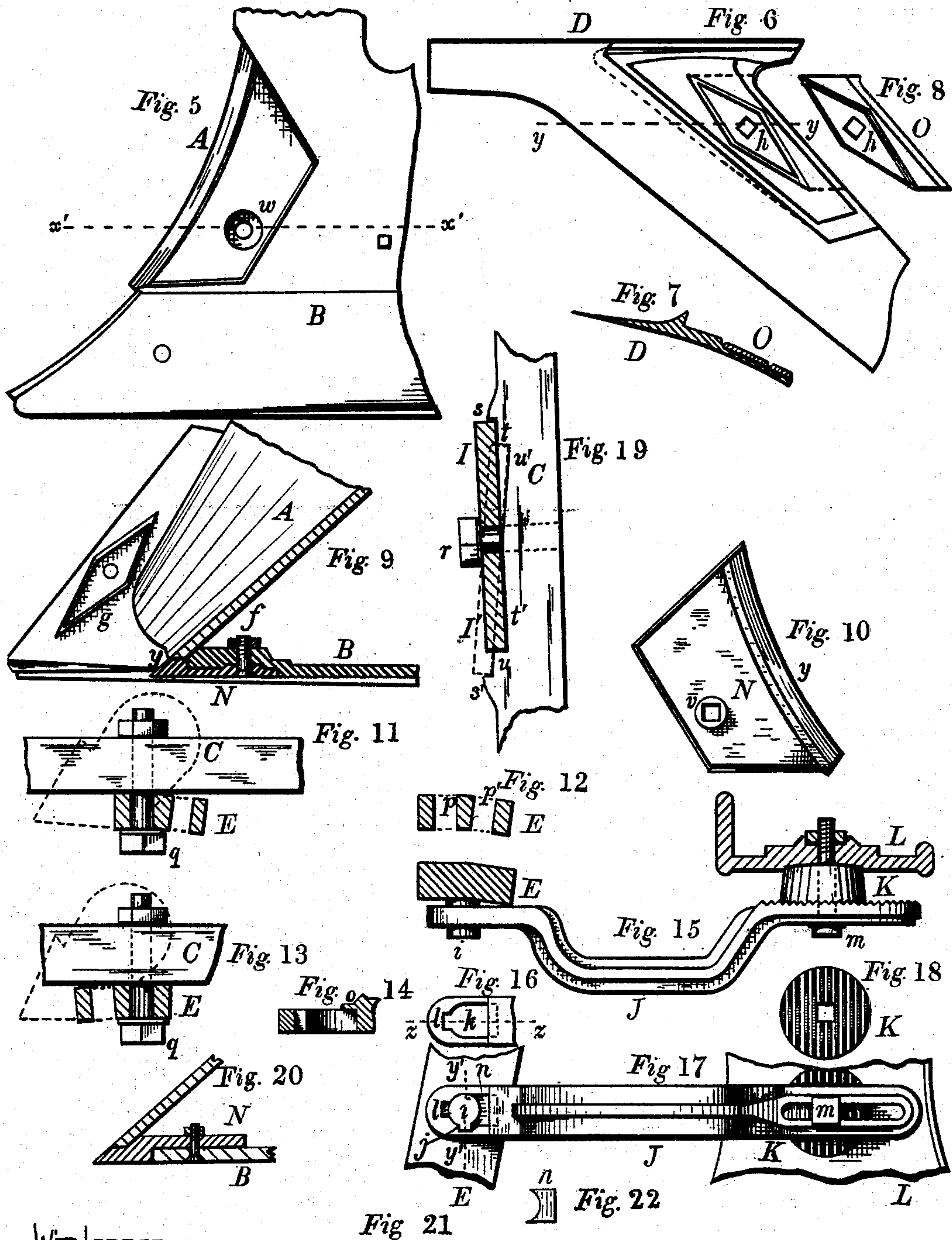
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WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN S. ROBINSON AND EDSON C. ROBINSON, OF CANANDAIGUA, N. Y.

PLOW.

SPECIFICATION forming part of Letters Patent No. 252,139, dated January 10, 1882.

Application filed January 27, 1881. (No model.)

To all whom it may concern:

Be it known that we, JOHN S. ROBINSON and EDSON C. ROBINSON, citizens of the United States, residing at Canandaigua, in the county of Ontario and State of New York, have jointly invented certain Improvements in Plows, of which the following is a specification, reference being had to the annexed drawings.

Our invention relates to certain improvements in plows; and it consists in an improved means of adjusting a double-faced jointer-standard to a movable plow-beam, in providing a double-faced jointer-standard with a brace, and in improved means of attaching the point to the standard.

Our improvements in plows are represented in the accompanying drawings, in which Figure 1 is a side elevation of a plow containing our improvements as seen from the furrow side. Fig. 2 is a side elevation of the landside of the same. Fig. 3 is a section through the corrugated beam on the line xx , Fig. 1. Fig. 4 is a plan view. Fig. 5 is a side elevation of the front part of the landside of our improved plow, the shim-piece being removed. Fig. 6 is an inverted view of the point. Fig. 7 is a section through the pattern from which the point is cast, on the line yy , Fig. 6. Fig. 8 is an inverted view of the detachable portion of the point pattern. Fig. 9 is a section on the line $x'x'$, Fig. 5, showing the parts below that line. Fig. 10 represents the shim-piece as seen from the inside. Figs. 11, 12, and 13 are horizontal sections through the jointer-standard immediately above the beam, showing the different positions in which the jointer may be attached to the beam. Fig. 14 is a section through the forward end of the jointer-brace on the line zz , Fig. 16. Fig. 15 is a horizontal section through the jointer-standard and the upper portion of the landside, showing the jointer-brace in plan view. Fig. 16 is a side view of the forward end of the jointer-brace. Fig. 17 is a side view of the jointer-brace. Fig. 18 represents the outer face of the notched collar. Fig. 19 is a section through the wheel-standard immediately above the beam, showing the different positions in which it may be attached to the beam. Fig. 20 is a horizontal section, showing a modified form of the shim-piece. Fig. 21 is a section of a portion of the jointer-standard on the line $y'y'$, Fig. 17.

Fig. 22 shows the rubber spring employed in the forward end of the jointer-brace.

In the accompanying drawings, A is the mold-board of a plow embodying our improvements; B, the landside, and C the beam. F is the mold-board of the jointer, G its point, and J the jointer-brace.

The beam C, which is cast of any suitable material, is corrugated longitudinally, as shown in the side views, Figs. 1 and 2, and in section, Fig. 3, the corrugations extending continuously from end to end of the beam. The beam consists of the upper and lower horizontal flanges, $a a'$, Fig. 3, and the corrugated web b , which starts from the inner central portion of the flanges and bends laterally next each flange, in the same direction, as shown at $c c'$, Fig. 3, and then turning in the opposite direction forms the central corrugation, d . At each end of the beam the flanges $a a'$ are joined together, the forward end of the beam being provided with notches for the reception of the clevis and the rear end with a lug, e , by which it is bolted to the rear arm, M, of the plow-standard. The corrugations increase the stiffness of the beam in a material degree, without adding to the weight. The beam is fastened to the forward arm, L, of the plow-standard by the bolt d , the upper end of which is secured in a recess in the plow-beam by a nut. This recess is provided with a flange for the purpose of strengthening the beam.

The form and mode of attachment of the shim-piece are shown in Figs. 2, 5, 9, and 10. The shim-piece N consists of a plate curved on its forward or cutting edge to conform to the shape of the plow, and is provided with a projecting flange, y , forming a joint with the forward edge of the mold-board. (See Fig. 9.) The shim-piece is preferably made of the shape shown in the drawings, reaching backward in a recess of corresponding shape formed to receive it in the standard of the plow, the outside of the shim-piece coming flush with the standard. The recess in the standard is beveled to adapt it to the beveled edges of the shim-piece. The shim-piece is fastened in the recess in the standard by a bolt, f , Fig. 9, passing through the standard, and provided with a nut on the inside thereof.

In Fig. 20 we have shown a modification of

the shim-piece, in which it is adapted to be bolted onto the inside of the landside of the plow.

The mold-board and point of our improved 5 plow are of the usual construction, with the exception that the point is provided on its lower side with a diamond-shaped groove, into which a corresponding rib or embossment on the forward portion of the standard fits, for 10 the purpose of holding the point in its position and preventing it from shifting in either direction if the bolt becomes loose. The embossment on the front end of the standard is shown at *g*, Fig. 9, while the correspondingly shaped 15 groove on the under side of the plow-point is represented at *h*, Fig. 6. The bolt by which the point is fastened to the standard passes through the center of the embossment.

In casting the plow-point the groove *h* is 20 formed by a loose piece, *O*, inserted into the pattern, (shown in Fig. 8 and in the sectional view, Fig. 7,) which is removed from the sand after the withdrawal of the pattern. The pattern is drawn from the sand point foremost, in 25 order that the recess in the under side thereof, which receives the forward end of the standard, may be made without employing cores, and consequently, in order to form the groove *h*, a portion of it is made in the loose piece *O*, 30 Fig. 8, which remains in the sand until after the point is drawn.

The jointer-standard *E* is braced from the forward arm, *L*, of the plow-standard by the brace *J*. The jointer-standard is provided on 35 the land side with a stud, *i*, Figs. 15 and 17, which has a projecting lug, *j*, Fig. 21, by which the forward end of the jointer-brace is held thereon. The forward end of the brace contains an opening, *k*, having a notch, *l*, Fig. 16, 40 adapted to fit over the stud *i* and the lug *j*. The brace is applied to the jointer-standard by inserting the stud *i* into the opening *k*, the rear end of the brace being held in the vertical position, so that the lug *j* passes through 45 the opening *l*, after which the brace is locked to the standard by turning its rear end downward and backward and securing it to the plow-standard by the bolt *m*, Figs. 15 and 17.

Between the stud *i* and the inner end of the 50 brace *J* is placed a rubber block, *n*, Figs. 17 and 22, which is held in place by a flange on the brace projecting partially over the opening, as shown at *o*, Fig. 14. The rubber block deadens the force of any blow received by the 55 jointer and prevents the breakage of the jointer-standard. The rear end of the brace is secured to the standard *L* by the bolt *m*, a notched collar, *K*, being inserted between the two. The inner end of the collar fits into a circular recess in the standard, and the outer end is 60 notched or ribbed to correspond with the inner face of the brace, (see Figs. 15 and 18,) so that the position of the brace lengthwise of the plow may be varied.

Our improved plow is so constructed that 65 the position of the beam with reference to the

landside may be changed to suit the employment of two or three horses, the lug on the rear arm, *M*, of the plow-standard being made 70 wide enough to admit of shifting the beam from the position shown in full lines in Fig. 4 to the position indicated by dotted lines.

In order to keep the land side of the jointer parallel with the landside of the plow in either 75 position of the beam, we make the inner side of the jointer-standard with two faces slightly inclined toward each other, as shown in Figs. 11, 12, 13, and 15. The jointer-standard is provided with two slots, *p p'*, Figs. 2 and 12, 80 so that it may be attached to the plow-beam by the bolt *q*, with either of the inclined faces in contact with the beam. The angle between the two inclined faces corresponds with the angle through which the beam is shifted to change 85 from two to three horses, so that by inserting the bolt in one or the other of the slots *p p'* the jointer can be arranged parallel with the landside in either position of the beam.

To avoid the necessity of changing the position of the jointer lengthwise of the plow, 90 the beam is provided with two holes (see Fig. 1) for the bolt *q*, located at such a distance from each other as to correspond with the slots *p p'*.

Provision is made for shifting the wheel *H* 95 to correspond with either position of the beam by the inclined notches on the side of the beam. (Shown in Fig. 19.) The arm *I*, which carries the wheel *H*, is fastened to the plow-beam by means of the bolt *r*, which passes through a 100 slotted hole in the beam, so as to permit of the arm being changed from the position shown in full lines in Fig. 19 to the position indicated by the dotted lines. The flanges on the upper and lower sides of the beam are provided with 105 lugs *s s'*, between which are formed notches having surfaces inclined in different directions at an angle with each other corresponding to the different positions of the beam. The shape of the notches will be readily understood from 110 the drawings, the wheel-arm in one position resting on the inclined surfaces *t* and *t'* and in the other on the surfaces *u* and *u'*.

The jointer may be adjustably attached to the beam by means of double inclined notches; 115 in a manner substantially similar to that in which the wheel-standard is connected to the beam.

In order to provide for gaging the depth of the furrow, we cast on the wheel-standard a series of numbers, which indicate in inches the 120 vertical distance from the lower side of the wheel to the horizontal plane in which the lower side of the plow is located. When the wheel-standard is placed so that any one of these 125 numbers comes opposite the upper flange of the beam the furrow will correspond in depth in inches with that number, except in case the ground is so soft that the wheel sinks into it, when a suitable allowance for this difference 130 should be made.

Instead of the rubber spring *n*, a block of

wood or other slightly elastic substance may be employed in the recess in the jointer-brace for the purpose of deadening the force of any blow received by the jointer.

5 We are aware that plow-points provided with longitudinal corrugations have been previously applied to standards provided with corresponding corrugations, as shown in the patent of Hall, No. 220,373, October 7, 1879, and such
10 construction we do not claim.

We are also aware that a recessed standard provided with projections adapted to fit a plow-point provided with a corresponding projection and recesses has been previously shown in the
15 patent of Bowsher, No. 205,236, June 25, 1878, and such arrangement of the locking-lugs we hereby disclaim, as by our construction we are enabled to make the standard and point of substantially equal thickness throughout, the
20 standard being stronger than standards of the ordinary form, in consequence of the diamond-shaped rib cast on it, and the point in turn possessing the full strength of the plate about the bolt-hole without being materially weak-
25 ened by the diamond-shaped groove, while the standard and point together, although firmly

secured to each other by the rib and groove, require no more metal than when made with flat surfaces. Our construction also obviates loss from breakage from strains in casting
30 caused by unequal thickness of the parts.

We do not claim herein the combination of the wheel-standard and the double inclined notches.

We claim—

1. The combination of the double-faced joint-
35 er-standard and the brace J, substantially as described.

2. The angular or double-faced and double-slotted jointer-standard E, in combination with
40 the bolt *g*, passing through the plow-beam, substantially as described.

3. The combination of the plow-standard, provided with the diamond-shaped rib *g*, and the point D, having on its under side the cor-
45 responding diamond-shaped groove, *h*, substantially as and for the purposes set forth.

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EDSON C. ROBINSON.

Witnesses:

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M. D. HOPKINS.