

Sheet 2, 2 Sheets.

J. Ball.

Plow

N^o 93,030.

Patented Jul 27. 1864

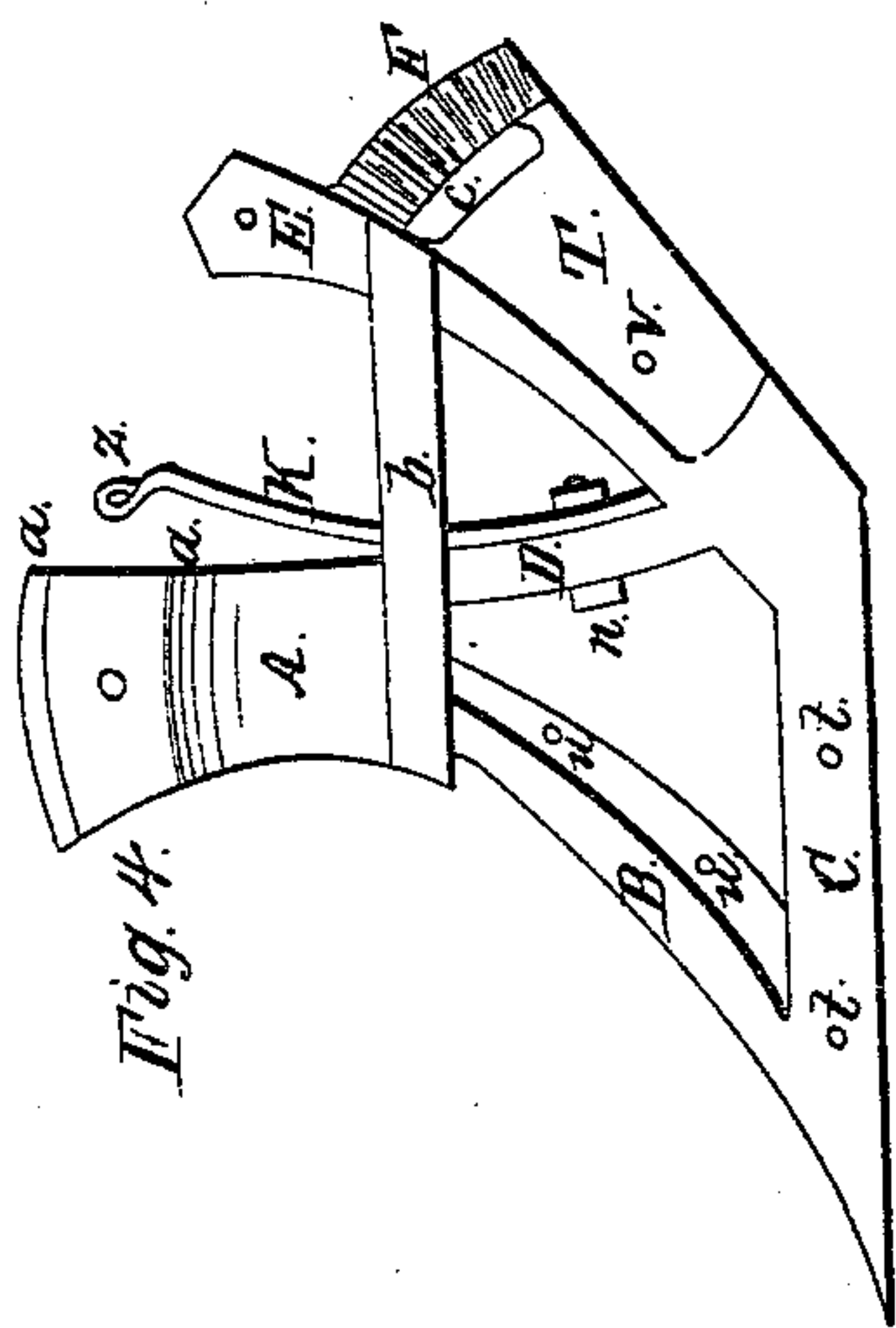


Fig. 4.

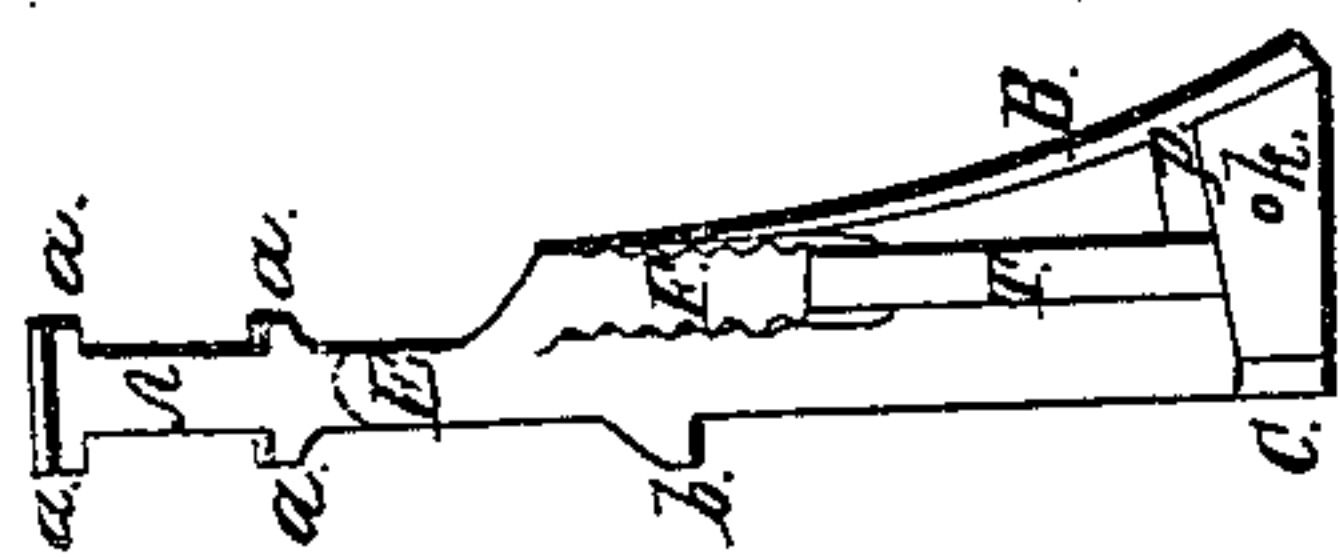


Fig. 5.

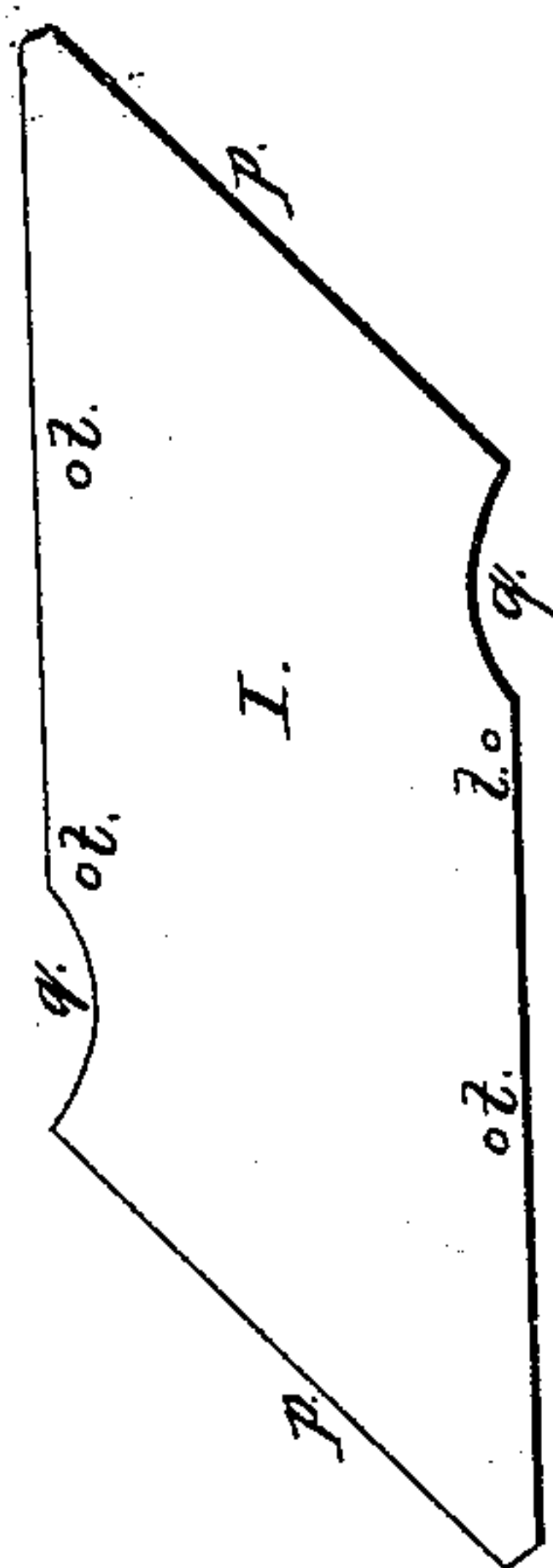


Fig. 6.



7. 62. H



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN BALL, OF CANTON, OHIO.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. 93,036, dated July 27, 1869.

To all whom it may concern:

Be known that I, JOHN BALL, of Canton, in the county of Stark and State of Ohio, have invented new and useful Improvements in Plows; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon, of which drawings—

Figure 1 is an elevation of my improved plow, taken from the land side of the same. Fig. 2 is a plan of the same. Fig. 3 is an inverted plan of the same. Fig. 4 is an elevation of the plow-standard, with draft-spring attached, and with the other parts of the plow detached. Fig. 5 is a rear end view of the same, with draft-spring removed. Figs. 6 are elevation and plan of the reversible landside. Figs. 7 are rear and front elevations and plan of the reversible shoe for landside.

The nature of my invention consists, first, in the novel mode of constructing the beam of a plow provided with a cast metallic standard, which forms a direct base of attachment for the principal parts of the plow, said beam being composed of two bars of iron or steel, curved to the proper shape and placed parallel to each other, with their rear ends secured at two or more points to arms cast on the front and rear of the plow-standard, and their front ends united to a cast or wrought iron block, to which the draft-clevis can be attached, whereby I obtain a very cheap, light, and strong plow-beam, which has all the necessary tensional strength, and at the same time possesses great lateral stiffness, as each piece acts as a crushing member, to resist the bending of the other part, so that no lateral bending can take place until both the elastic strength of one part and the crushing strength of the other part are overcome, thus making the beam of great utility in plow construction, and overcoming all those difficulties which have heretofore rendered a wrought-iron plow-beam of but little practical utility.

My invention consists, secondly, in the novel construction of a cast metallic standard for plows, said standard being formed in a single casting, and having on it a standard with flanges, between which the two bars forming the beam are bolted; a rear standard, to which the rear ends of said bars are bolted; a corru-

gated segment, which forms an adjustable point of attachment for the plow-handles, and seats for the share, landside, and movable share-piece, together with suitable holes for the bolts which are used to attach these several parts to the standard, whereby I obtain a strong and light standard, which can be cheaply made, and which allows of great uniformity of construction, so that if damaged or broken it can be readily replaced by a duplicate standard by the farmer himself, without the necessity of sending the plow to the shop.

My invention consists, thirdly, in so constructing the landside of a plow as that its front edge shall form a sharp cutter for cutting the sod, and also so that it can be reversed or turned end for end on the plow, so that as one cutting-edge becomes worn the other edge can be brought into action, and the efficiency of the implement be thus maintained without any additional expense or material increase of metal in the plow.

My invention consists, fourthly, in the novel construction of a combined point and landside-shoe for a plow, said point and shoe being so constructed and attached to the plow as that its front end serves as the plow-point, and its lower side forms a shoe for the landside; and also so that it can be turned end for end, so as to bring either end into action as the plow-point, and either side into action as the landside-shoe, whereby I lessen the cost of repairing the plow-point when worn or broken, and obtain a reliable wearing-surface for the bottom of the landside.

My invention consists, fifthly, in applying a spring to the plow-standard, and connecting the movable end of the same to a rod or chain, which passes under or through the plow-beam to the front end of the same, where it forms the point of attachment for the team, whereby I obtain a cheap and durable spring-draft for the plow, and avoid the sudden strains on the plow which frequently occur where there is a rigid draft for the same.

My invention consists, sixthly, in the novel mode of attaching the handles to the plow-standard, said handles being provided with corrugated irons on their inner faces at their lower ends, and being pivoted by a bolt at their lower ends to the plow-standard, and the desired positions of the handles being secured by means of a bolt which passes through the

handles and a slot in the plow-standard and clamps the corrugated irons on the inside of the handles against a corrugated segment on the plow-standard, whereby I obtain a much stronger adjustable attachment for the handles than that shown in my patent of September 1, 1868, as the handles extend down to the side of and serve to strengthen the corrugated clamping-irons, and there is less leverage thrown by the handles on the lower fastenings for the same.

To enable others skilled in the art to make and use my invention, I will proceed to describe more fully its construction and operation.

The plow-standard in my improved plow, which forms the basis of the whole structure, and to which nearly all of the different parts of the plow are attached, is made of cast-iron, or of any other suitable cast metal, and is composed of the standard A, which has the flanges *a a a a* at its sides for the reception of the beam-pieces G G, and which branches out into the two parts B and D at its lower end, the part B being formed with a suitable face to serve as seats for the share J, and movable share-piece O, and the part D acting as a strut between the standard A and rear standard, E. The upper end of this standard E forms the point of attachment for the rear ends of the beam-pieces G G, and the corrugated segment F, with the underlying plate T, is cast at the side of said standard, as shown in Figs. 2, 4, and 5.

The bar C is cast on the lower ends of the standards A and E, and serves as the line of attachment for the lower side of the landside I and the point and shoe M, and the bar *b* is also cast on said standards, as shown, and serves to connect and strengthen the same, as well as to increase the height of the landside of the plow, so as to insure a clean furrow.

The filling-piece P is cast between the lower part of the standard B and the bar C, as shown in Figs. 3 and 5, and serves as a brace to the lower part of the plow-standard.

The plow-beam is composed of two bars, G G, of iron or steel, which are curved, as shown, and are secured by the bolts *f* and *g* to the standards A and E. Their front ends are secured by the bolts *m m* to the block H, to which the draft-clevis may be attached. It is evident that there is but little danger of vertical bending in this beam, owing to the depth of the bars G, and also that there is but little chance for any lateral bending, as each piece acts as a strut or truss rod to prevent the bending of the other piece, owing to the combination of said pieces with the rigid standards A E and the block H, so that by this combination I obtain a very light and cheap plow-beam, which possesses an amount of strength and stiffness not found in any other wood or metal beam.

The share J can be made of any suitable form, and is secured to the standard B by bolts

which pass through the holes *u u*. (Seen in Fig. 4.)

The share-piece O abuts against the share J, and is held on the standard B by the bolt *k*, (seen in Figs. 2 and 3,) its front edge forming the cutting-edge for the share.

The landside I is made of the form shown in Figs. 6, and has the two cutting-edges *p p*, with the portions *q q* immediately to the rear of each cutaway, so as to leave a greater space under the plow-beam, and thus prevent clogging. This landside sets up against the landside faces of the standards A E and bars D C, where it is secured by the same bolts, *t t*, which secure the point and shoe M to the shoe-bar C, and when secured in this position its front edge projects out in front of the share J, as shown by dotted line in Fig. 1, so as to form the cutter for the plow.

The holes *t t* at the top and bottom of the landside I are symmetrically arranged with respect to the edges *p p*, so that as one edge *p* becomes worn the bolts *t t* can be taken out, and the landside turned end for end and then be secured by the same bolts *t t*, thus bringing the other edge *p* of said landside into action.

The combined point and shoe M is of the form shown in Figs. 7, having the sharp flat ends *x x* and the flukes *r* and *s*, which set out from the bar M, so as to leave the spaces *w w*, as shown in plan. When on the plow, the lower face of this shoe, together with the lower edges of the landside I and shoe-bar C, are in the same plane, the landside fitting in the spaces *w w* and the front fluke, *s*, resting on the movable share-piece O, and the shoe M is held in this position by the bolts *t t*, which pass through the holes *t t* in the shoe M, landside I, and shoe-bar C, and are secured by the nuts *h h*, as shown in Fig. 3.

A slot, *i*, is formed in the lower part of the standard, to allow of the turning of the forward nut, *h*, as shown in Fig. 3.

The holes *t t* are symmetrically arranged in the shoe M, so that by taking out the bolts *t t* the shoe M can be reversed, so as to bring either end *x* into action.

From the foregoing description it is readily seen that my plow is easily kept sharp, as the point of the shoe and the edge of the landside can be reversed or ground, whenever desired, and the share-piece O is easily removed and ground, or replaced by a new piece whenever dulled or broken.

The spring K is made of flat bar-steel in the general form shown, and has an eye, *z*, formed at its upper end. It is secured to the strut D by a bolt, *n*, as seen in Fig. 4, and a draft rod or chain, L, is attached to the eye *z*, and passes through a hole in the standard A out between the beam-pieces G G to the eyebolt *l*, which is secured in one of the holes in the block H, as shown.

The team being attached to the eye at the end of the draft-rod L, it is evident that the spring K forms an elastic resistant between

the plow and team, whereby the sudden strains which frequently occur in plowing are deprived of much of their injurious effects on the team and plow.

The handles *N N* are united near their upper ends by a cross-bar, as shown, and have the irons *d d* provided with corrugated inner faces secured at the inner sides of their lower ends, as shown in Figs. 2 and 3. The lower ends of these handles are pivoted to the plow-standard plate *T* by the bolt *e*, which passes through holes at the lower ends of the handles *N* and the irons *d*, and through the hole *v* in the plate *T*. (Shown in Fig. 4.)

The clamping-bolt *y* passes through the handles *N* and the irons *d* near the upper end of said irons, and through the slot *c* in the plate *T*, and serves to clamp the corrugated faces of the irons *d* against the corrugated segment *F* on the plow-standard, thus securing the handles in position.

It is readily seen that by loosening the bolt *y* the handles *N N* can be turned at any desired angle with the plow-beam, so as to obtain the required height for the ends of the handles.

Having thus fully described my invention, I wish it understood that I do not claim a plow-beam constructed of a single bar of cast or wrought iron or steel, whether the same be made to perform the functions of a beam alone or of a combined beam and standard; nor do I claim a plow-beam composed of two or more bars of iron or steel, except when combined with a cast metallic standard, which forms a direct base of attachment for all the principal parts of the plow; nor do I claim casting plow-standards in a single casting, except when said standard is constructed with each and all of the parts herein described, and said parts are arranged as shown; nor do I claim a reversible point and shoe, except when constructed and arranged as is herein described; nor do I claim extending the landside in front of the mold-board, except when said landside is made reversible, as is herein shown; nor do I here claim the principle of attaching the plow-handles to the beam or standard in such a manner as that they shall be adjustable thereon, as all these features have been before shown; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. A plow-beam constructed of two or more bars of iron or steel, when used in combination with a cast metallic standard constructed as herein described, substantially as and for the purpose herein specified.

2. The plow-standard herein described, the same being composed of the standard *A*, with flanges *a a*, share-seat *B*, shoe-bar *C*, landside-bar *b*, post *D*, standard *E*, and corrugated segment *F*, and the said parts being so arranged as that the whole can be cast in a single casting, substantially as and for the purpose specified.

3. So constructing and arranging the landside of a plow as that the ends of said landside shall extend to the front of the plowshare and form the plow-cutter, and, also, so that said landside can be turned end for end, so as to bring either of its cutter-edges into action, substantially as is herein specified.

4. The combined point and shoe herein described, composed of the bar *M*, with pointed ends *x x*, and flukes *r s*, when the same is used in combination with the plow-standard, landside, and movable share-piece, substantially as and for the purpose specified.

5. The spring *K*, when used in combination with the plow-standard *A D* and draft rod or chain *L*, substantially as and for the purpose specified.

6. Providing the lower ends and inner faces of the plow-handles with corrugated irons, pivoting said handles by means of a pivot-bolt to the plow-standard, and securing them at any desired angle with the beam, by clamping the corrugated irons against a corrugated segment on the plow-standard, by a clamping-bolt placed above the pivot-bolt, and passing through holes in the handles and a slot in the plow-standard, substantially as is herein specified.

As evidence that I claim the foregoing I have hereunto set my hand, in the presence of two witnesses, this 28th day of May, A. D. 1869.

JOHN BALL.

Witnesses:

WM. MCKINLEY, Jr.,
JOB ABBOTT.