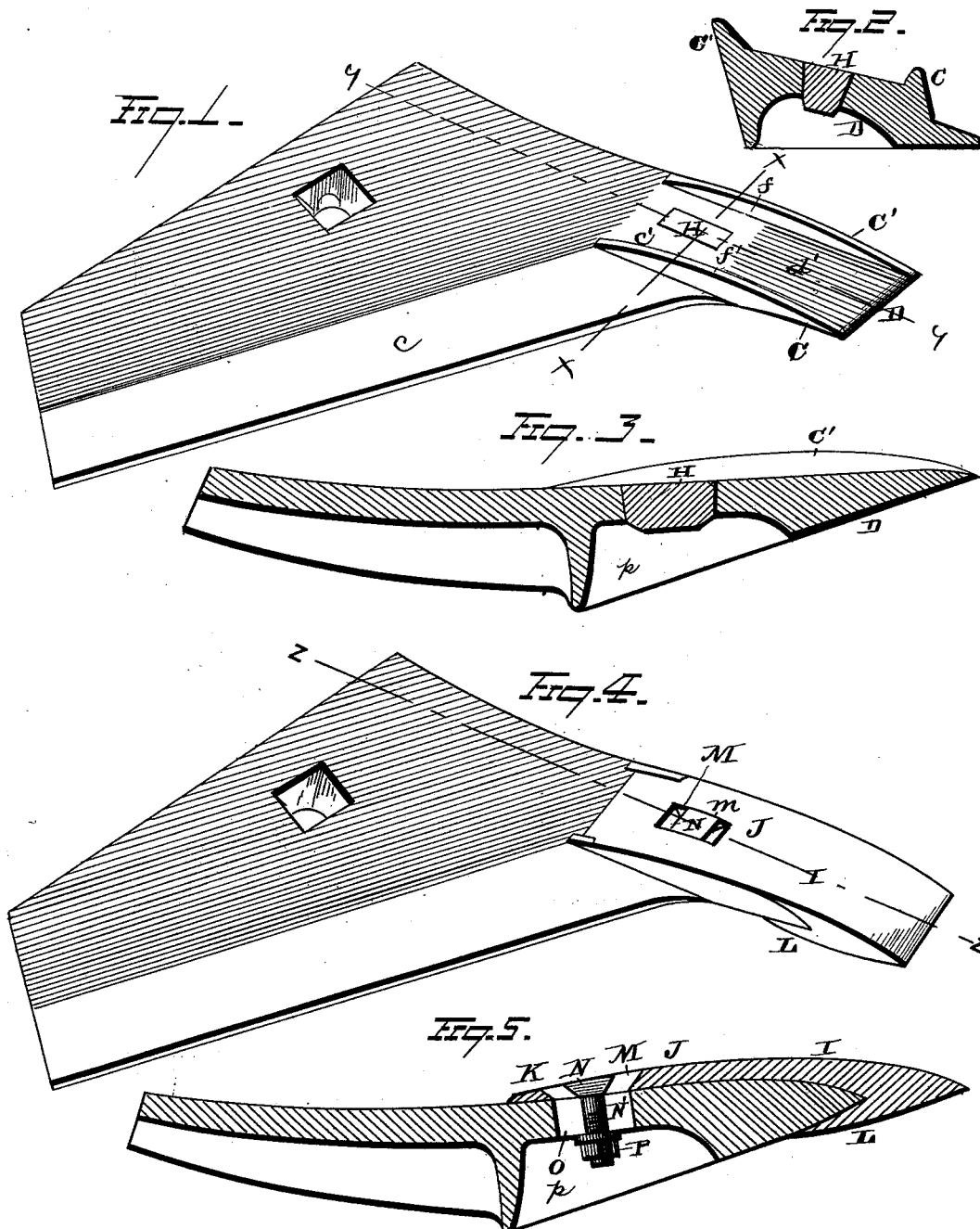


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Plow-Point.

No. 220,649.

Patented Oct. 14, 1879.



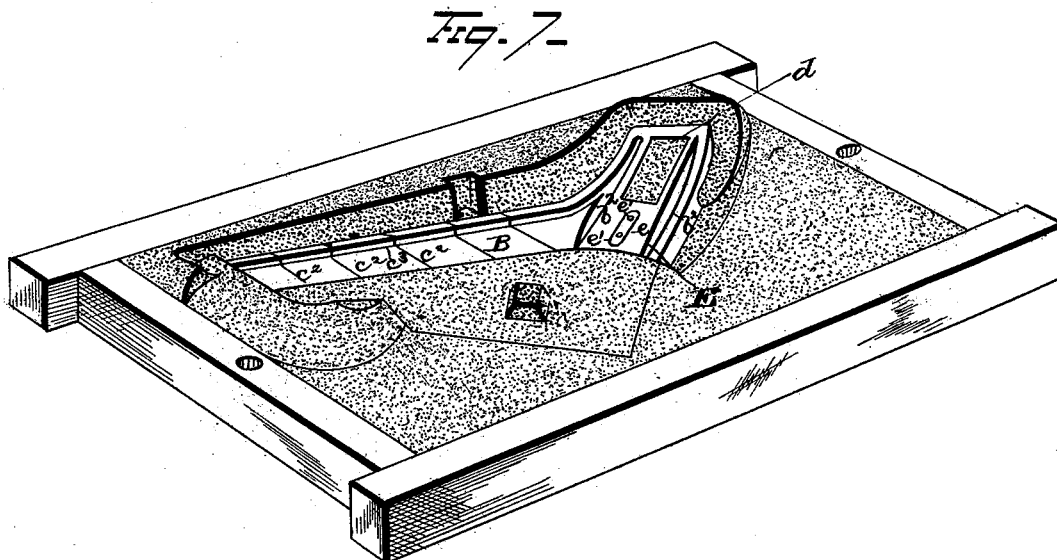
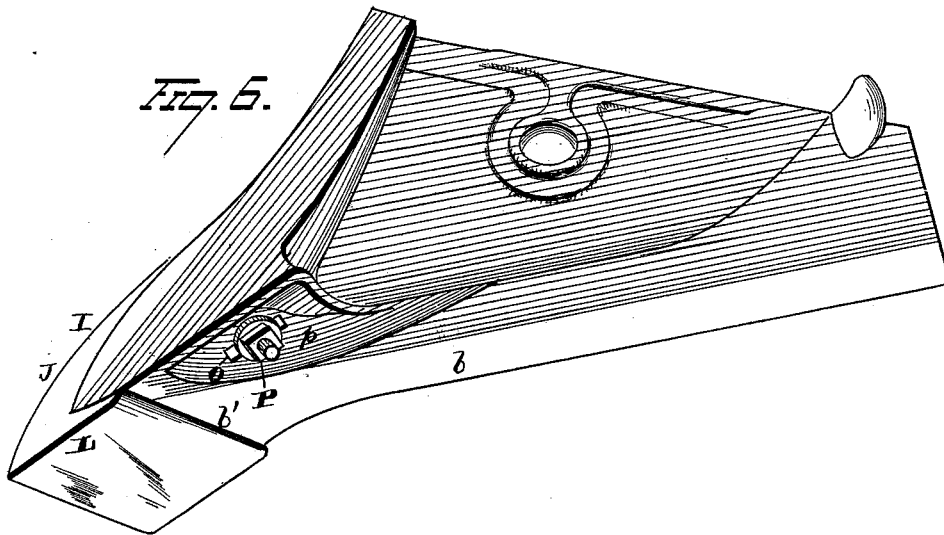
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Fig. 8.

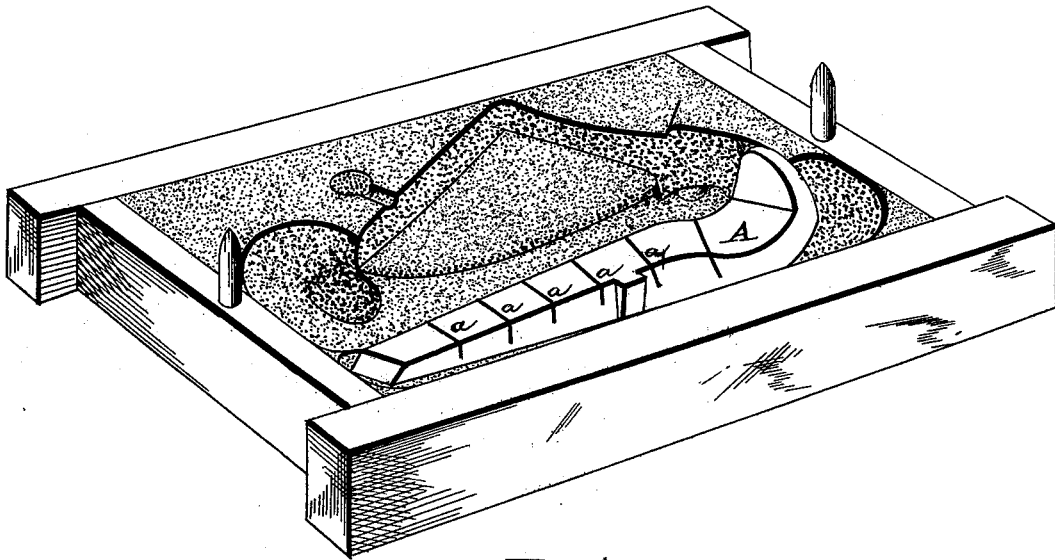
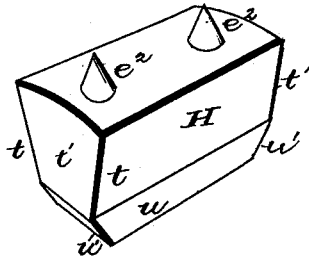


Fig. 9.



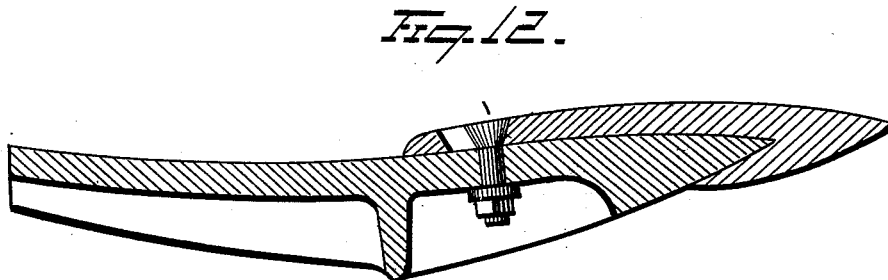
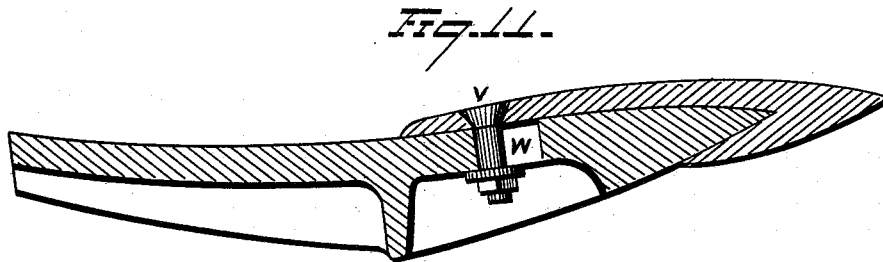
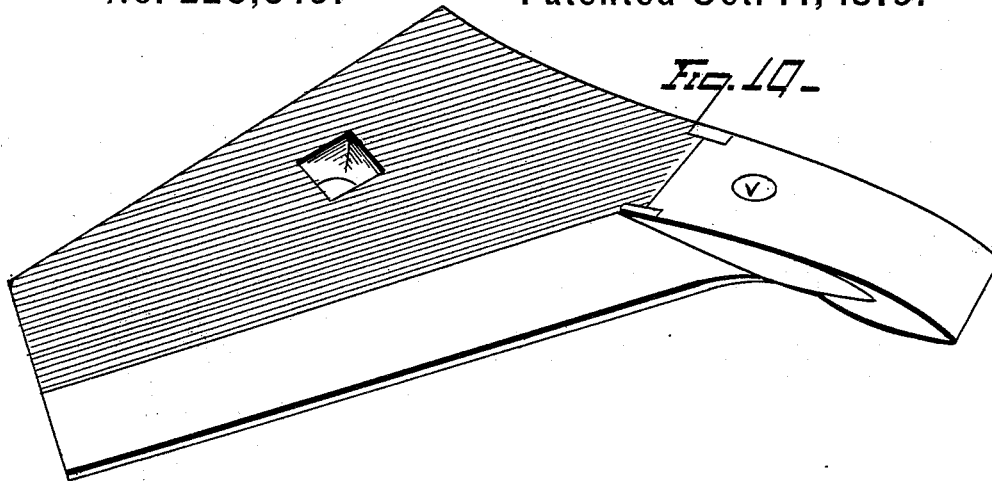
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UNITED STATES PATENT OFFICE.

JAMES OLIVER, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN PLOW-POINTS.

Specification forming part of Letters Patent No. **220,649**, dated October 14, 1879; application filed August 29, 1879.

To all whom it may concern:

Be it known that I, JAMES OLIVER, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Plow-Points; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in plow-points; the object being, first, to provide a plow-point of such construction that it will have a sharp and durable cutting-edge, a thin re-enforced and self-sharpening nose, and provided with a detachable die to allow of the adjustable and firm attachment of a false nose when the nose of the plow-point becomes dull by long and continued service.

A further object of my invention is to provide a plow-point with chilled bearings, for the firm and even support of the different portions of a false nose, and means for securing the false nose to the nose portion of plow-points which have been subjected to varying degrees of wear.

My invention consists, first, in a plow-point having the opposite sides of its edge and nose chilled, with the exception of a space on the upper side of the nose, which extends to the cutting-edge thereof, and a chilled seat formed on the nose in rear of such unchilled portion.

My invention further consists in a plow-point having a removable die embedded in the nose portion thereof.

My invention further consists in the combination, with a plow-point having its nose re-enforced by strengthening-ribs, of a false nose adapted to fit between said ribs, and suitable means for securing the false nose in place.

My invention further consists in the several other details of construction and arrangement of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, in perspective, of a false plow-point, with a removable die embedded in the nose portion thereof. Fig. 2 is a section taken through line *y y* of Fig. 1. Fig. 3 is a section

taken through line *x x* of Fig. 1. Fig. 4 is a view, in perspective, of my improved plow-point, having a false nose secured thereto. Fig. 5 is a section taken through line *z z* of Fig. 4. Fig. 6 is a view, in perspective, of the under side of the plow-point and false nose illustrated in Fig. 4. Figs. 7 and 8 are views, in perspective, of the two parts of the flask properly rammed up for pouring, with the chills in position for imparting a chilled surface to the desired portions of the plow-point. Fig. 9 is a view, in perspective, of the removable die. Figs. 10 and 11 are views, respectively, in perspective and longitudinal section, of a plow-point and false nose embodying my invention, the form of attachment being slightly changed; and Fig. 12 represents a view of another slight modification in construction relating to the attachment of the false nose to the plow-point.

A represents the lower chill, which is adapted to impart a chilled surface to the under side of the edge and nose of the plow-point. Chill A is made of a solid piece of iron or suitable metal, with channels *a* cut transversely in its chilling-face, thereby subdividing the chill into independent chilling-faces, in order that the different portions of the chill may expand and contract without warping the chill and distorting the resulting casting. Channels *a* are of sufficient depth to insure independent chill-faces of the necessary thickness, the requirements being that the several chill-faces shall be of sufficient thickness to prevent the heat of the molten metal, as it is poured upon the chill, from penetrating the metal of the chill to a depth exceeding that of the channels *a* before the casting shall have solidified sufficiently to obviate any warping of the chills or distortion of the casting.

Chill A serves to impart the smooth chilled surface *b b'* to the lower side of the edge and nose of the plow-point, as illustrated in Fig. 6.

B represents the chill for imparting a chilled surface to the upper side, *c*, of the edge and portion *c'* of the nose of the plow-point, as indicated in Fig. 1 of the drawings. Chill B is provided with ventilating-grooves *c''*, to allow of the escape of any gases which may be generated in the flask as the molten metal is

poured upon the chill, and thus prevent the formation of blisters or imperfections on the chilled surface of the casting.

A flange, c^3 , extends along the edge of the chill-face, and constitutes a wall uniting the outer edges of chills A and B, and forming the extreme edge of the plow-point.

Chill B is provided with grooves or depressions b^2 , for forming and chilling the ribs C C' on the nose of the plow-point D. Between said grooves or depressions is formed an open space, d , in the chill, to allow the sand to be rammed up flush with the face of the chill within said space, as shown in Fig. 7 of the drawings, to prevent the chilling of the space d' on the nose of the plow-point.

Part E of the chill B is that portion of the chill which produces the chilled seat c' on the rear portion of the nose of the plow-point, and within said portion is formed an elongated depression, e , provided at opposite ends with holes e' .

H is a die of rectangular form and slightly wedge-shaped, and provided with prongs e^2 . Die H is placed in the recess or depression e , the prongs e^2 entering the holes e' , thereby securing the die against displacement when the metal is poured. The die is of greater width than the desired thickness of plow-point, so that the bottom of the die projects downwardly into the sand mold a little distance. When the two parts of the flask, having chills and die properly arranged therein, are secured together and the metal is poured into the flask, the metals flow between the chills, surrounding the die, or that portion thereof which is located between the chills, and as the metal cools and solidifies the die is embedded in the chilled seat c' on the rear portion of the nose of the plow-point, the prongs of the die projecting outwardly from the surface of the chilled seat, while the bottom of the die projects slightly from the under surface of the plow-point. The projecting prongs are ground off flush with the upper surface of the plow-point, and as the die is wedge-shaped it cannot be displaced by the usual downward pressure, to which the plow-point is subjected when in use.

The plow-point, with its removable die embedded therein, as represented in Fig. 1, is thus rendered a complete and perfect article of manufacture when produced in the manner described, and is adapted for any ordinary use.

The lower surface of the nose of the plow-point, being chilled, is protected from rapid wear by its thin layer or skin of hard chilled metal, while the upper surface is left unchilled and of soft cast-iron, that it may be allowed to wear away by constant abrasion, and thus produce a nose that is self-sharpening, the thin chilled lower surface constituting a sharp cutting-edge.

The ribs C C' on the nose serve to strengthen the same, and allow of the employment of a comparatively thin flat cutting-edge on the nose. The ribs, being chilled on both their in-

ner and outer sides, are prevented from being rapidly worn away, and the chilled seat c' on the rear portion of the nose prevents the metal surrounding the die from wearing away, and thus wearing away or displacing the die.

The die is not liable to become accidentally displaced from the plow-point, owing to its peculiar shape, it being formed with reversely-inclined sides and ends, as shown in the drawings, the sides t and ends t' being inclined in one direction, while the upper portion of the die is beveled off at its sides and ends, as shown at $u u'$, in order that the metal of the plow-point may envelop the die, and prevent its accidental displacement in either direction.

The chilled seat surrounding the die has an important and valuable function, as will be explained.

When the metal of the upper part of a plow-point commences to wear off by use in the soil it wears a groove in the front portion of the nose, and this groove gradually extends backward as the points become worn, until finally it will reach the mold-board, and cause the latter to be cut into and practically ruined. Plow-points made with a ribbed nose or a depressed central upper surface on the nose are especially liable to this defect. I obviate this difficulty by means of the chilled seat, within which the die is embedded, as the chilled seat operates to spread the soil as it passes upward toward the mold-board, and the friction being diffused as the soil passes over the smooth chilled surface prevents the formation of any groove therein, and thereby preserves the mold-board.

From the foregoing description it will be observed that my improved plow-point, as first produced, is provided with a chilled surface, b' , on the under side of the nose, chilled surfaces $f f'$ on the inner surfaces of the strengthening-ribs C C', and a chilled seat, c' , surrounding the removable die H. These several features of construction are of great value in the production of a practical plow-point to which it is desired to attach a false nose when the plow-point has become unduly worn, for the following reasons: The unchilled upper surface or space, d' , of different plow-points will not wear away uniformly or evenly, owing to different extent of services, varying degrees of work, and the like, and hence some provision is requisite for insuring uniform bearing-surfaces on all plow-points when first produced, and that such bearings may be practically preserved on all of such plow-points, regardless of the degree or character of wear to which the cutting-edge of the nose of the plow-point has been subjected to allow of the firm and secure attachment of false noses to the old and worn plow-points. For a further illustration of this matter a description of the false nose and its method of attachment will now be given.

I represents a false nose, constructed and adapted to be applied to my improved plow-point, hereinbefore described.

The upper portion, J, of the nose is made to

overlap the worn-away portion of the nose of the plow-point, and is made tapering from its point rearwardly to insure a smooth and practically unbroken inclined surface.

The upper portion, J, is made to fit snugly between the chilled ribs C C' on the plow-point before the latter has been used, and as there is but little, if any, perceptible wearing away of the inner surfaces, $f f'$, of the ribs, C C', the false nose is insured snug lateral bearings on old and worn plow-points of the form described to which the nose may be secured.

The rear portion, K, of the false nose has its bearing upon the chilled seat c' of the plow-point, said chilled seat being preserved from any material changes throughout the original use of the plow-point.

The false nose is provided with a lower lip, L, which bears upon the chilled under surface, b' , of the nose, and thus it is that the false nose is provided against vertical or lateral displacement, and is insured uniform bearings on old and worn plow-points.

As heretofore stated, the die H, which is embedded in the nose of the plow-point when first made, is rectangular in form, which is necessary to form an elongated slot in the nose of the plow-point when the die is removed, to allow of the adjustment of the false nose upon plow-points which have been subjected to varying degrees of wear and service, as the end of the false nose is required to abut against the outer edge of the worn-away nose, or the ends of the ribs C C', to insure a firm attachment of parts.

When it is desired to attach a false nose to an old and worn plow-point, the die is readily removed by blows struck upon the bottom part of the die, which projects beyond the under surface of the plow-point.

The false nose is provided with an elongated slot, M, having beveled side walls, m , within which is seated the parallel-sided bolt-head N, the threaded stem N' of which extends through the elongated slot O in the plow-point and receives a nut, P, on the under side, by which the parts are firmly secured together.

Underneath the nose of the plow-point is formed a recess, p , for the reception of the lower end of the bolt N' and the nut P, whereby these parts are protected from wear or displacement when the false nose is in use.

In Figs. 10 and 11 the false nose is attached by means of a bolt, v , the head of which fits snugly in a hole formed in the false nose. The head of the bolt may be round, square, or of any desired form.

The plow-point is provided with an elongated slot, w , through which the threaded end of the bolt projects, and thus allowing of the adjustable attachment of the false nose to the worn plow-point.

In Fig. 12 the false nose is provided with an elongated slot, and the plow-point with a

round hole, in which snugly fits the stem of the bolt.

By loosening the nut the false nose may be adjusted, and then secured by tightening the nut.

It will thus be observed that by my improvement I am enabled to provide a very desirable and efficient plow-point in the first instance, which possesses many marked and obvious advantages over plow-points of ordinary construction; and, further, to provide an attachment consisting of a false nose, the initial cost of which is very small and inconsiderable, which may be readily applied to old and worn plow-points of the construction referred to, and render them practically new plow-points at slight trouble and expense.

As I am the first to produce chills and devices for manufacturing a plow-point in the manner and of the construction hereinbefore set forth, I have embodied herein a description of my improved chills and devices, that the public may obtain knowledge in this patent of the manner and means resorted to in the construction of my improved plow-point; but I make no claim in this patent to the chills or devices shown and described for manufacturing my improved plow-point, as the same constitutes subject-matter for a separate patent, the application for which was filed of even date herewith.

It is evident that many slight changes may be resorted to in the form and construction of the different parts of my improved plow-point and false-nose attachment, and hence I would have it understood that I do not limit myself to the exact construction and arrangement of parts shown and described; but,

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

1. A plow-point having the opposite sides of its edge and nose chilled, with the exception of a space on the upper side of the nose, which extends to the cutting-edge thereof, and a chilled seat formed on the nose in rear of such unchilled space, substantially as set forth.

2. A plow-point provided with a removable die securely embedded in the nose portion of the point in casting, the upper portion of the die being flush with the upper surface of the nose, substantially as set forth.

3. The combination, with a plow-point in which the nose is re-enforced by ribs which project above the surface of the nose and edge of the point, and are pointed on their outer ends, of a false nose constructed to fit between said ribs, and suitable means for securing the false nose in place, substantially as set forth.

4. A false nose for plow-points, the upper portion of which is constructed to fit between strengthening-ribs formed on the upper surface of the nose, its outer end provided with

a V-shaped recess to receive the outer ends of the ribs, while its lower portion projects beneath its upper portion to engage with the under side of the nose, substantially as set forth.

5. A plow-point provided with a ribbed nose, and a chilled seat formed on the rear portion thereof, and formed with a recess, *p*, on the under side of the nose, in combination with a false nose and a fastening bolt and nut, the

latter being located within the recess *p*, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of August, 1879.

JAMES OLIVER.

Witnesses:

LUCIUS HUBBARD,
FRANCIS W. GROVE.