

(No Model.)

C. LA DOW.
PLOW SHARE AND POINT.

No. 575,667.

Patented Jan. 19, 1897.

Fig. 1.

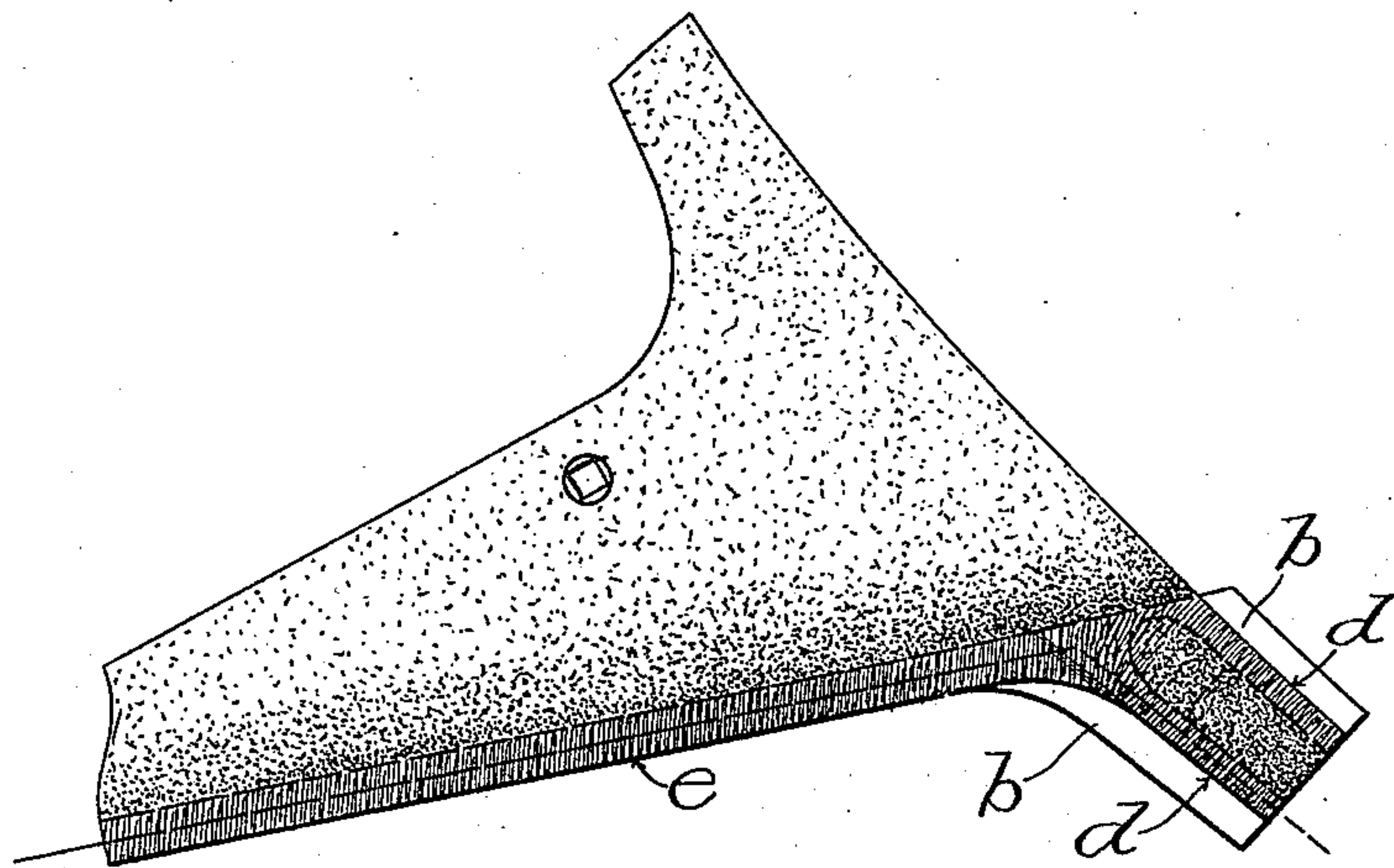


Fig. 2.

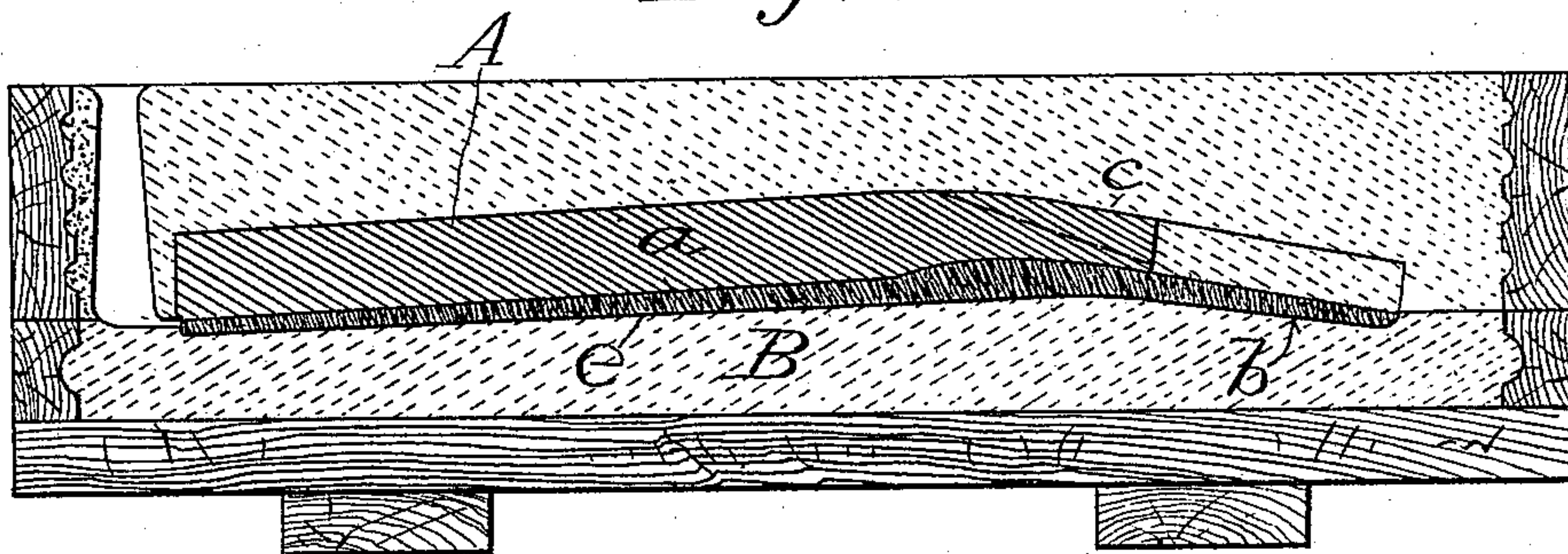


Fig. 3.

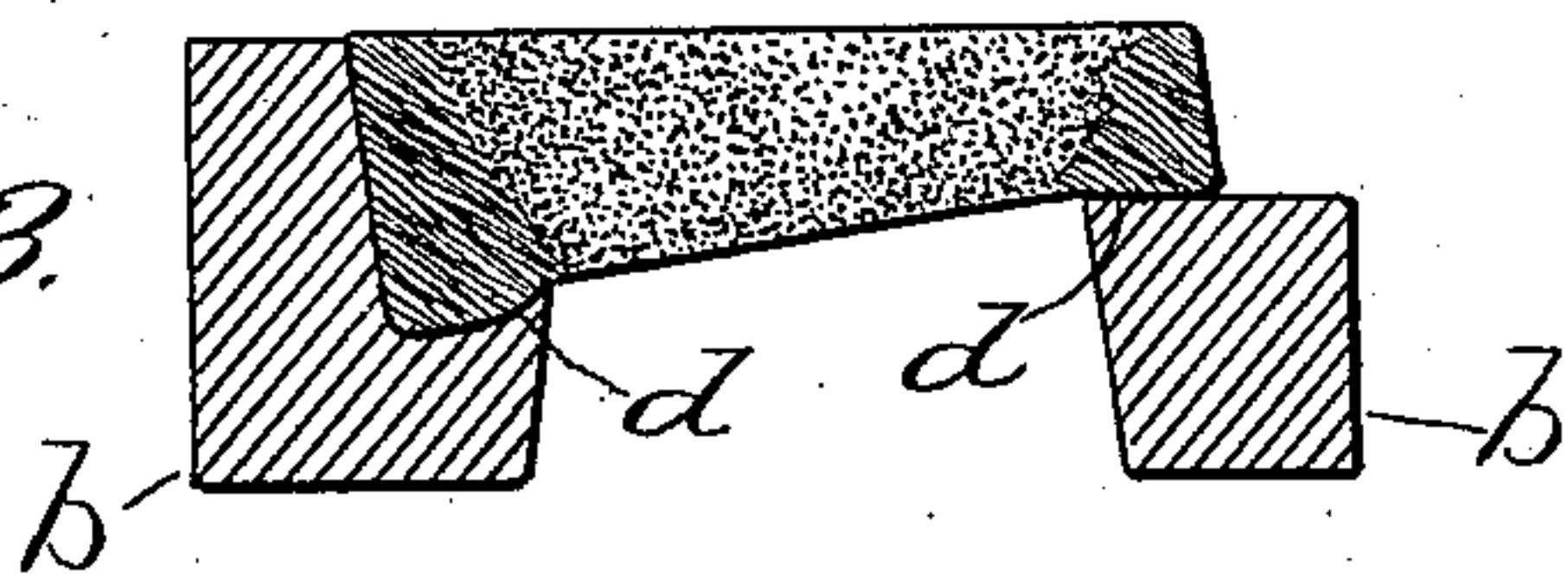


Fig. 5.

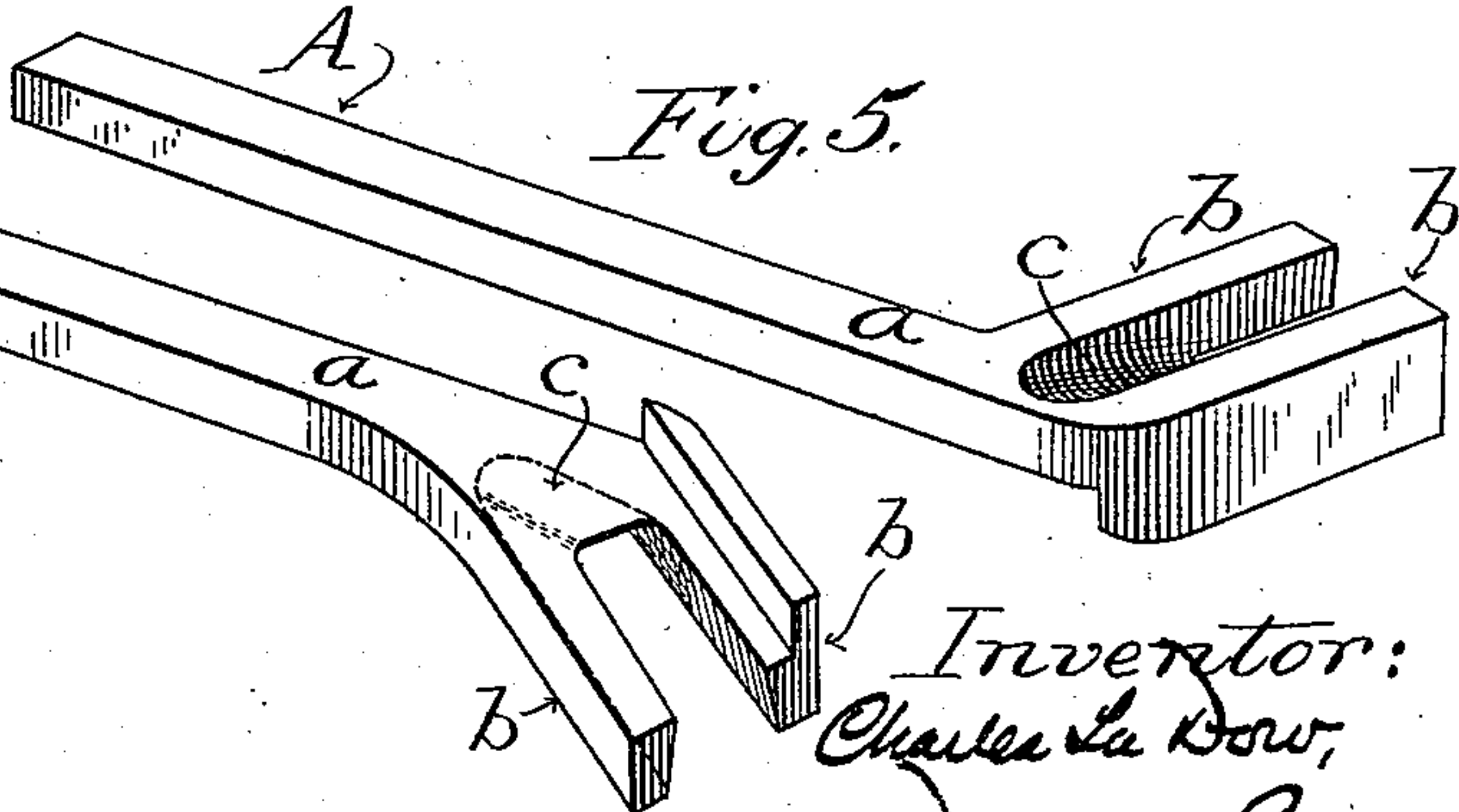
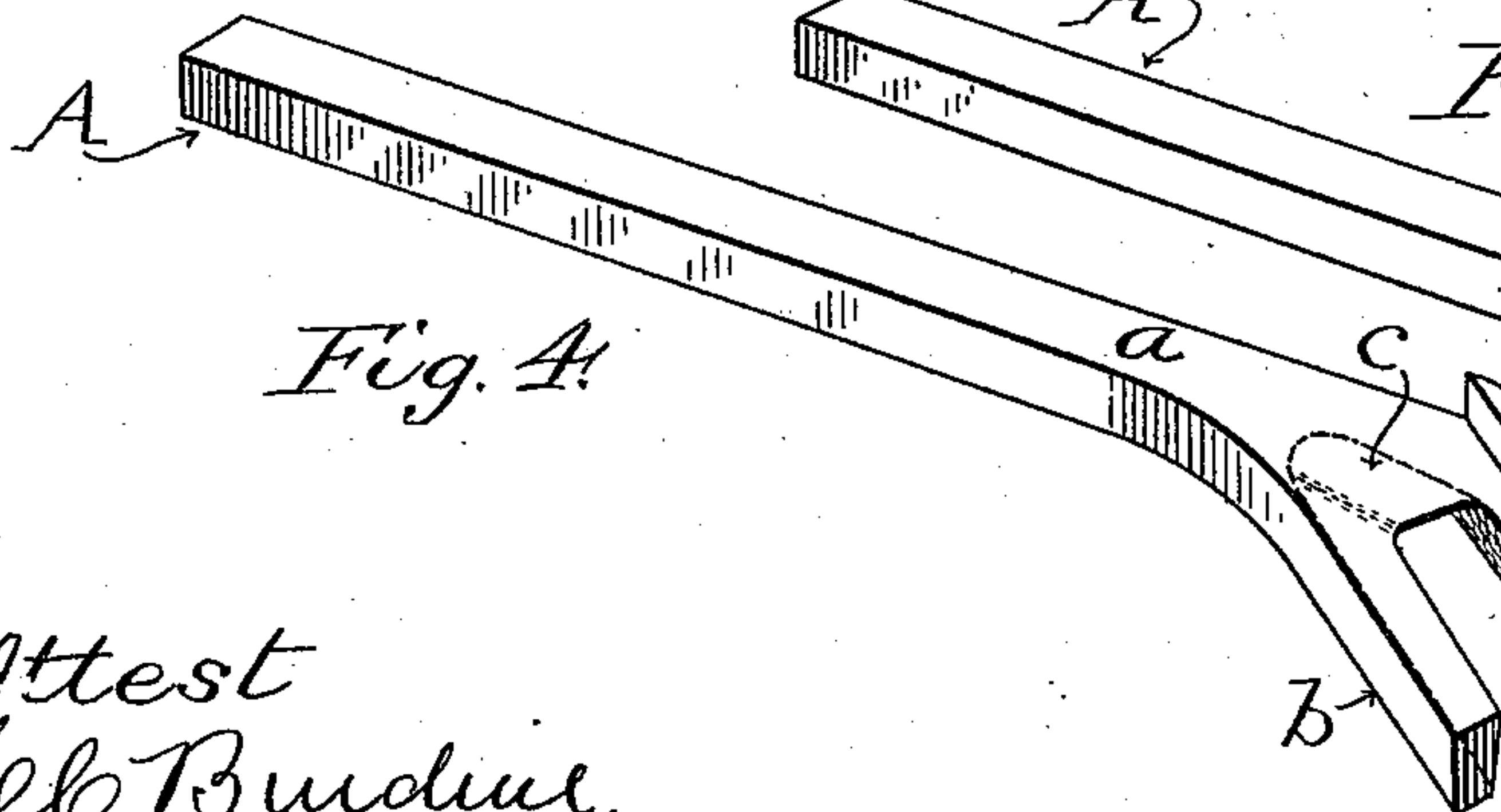


Fig. 4.



Attest
W. B. Brundage.
J. M. Pond.

Inventor:
Charles La Dow,
by Dodget Sons Attys.

UNITED STATES PATENT OFFICE.

CHARLES LA DOW, OF ALBANY, NEW YORK.

PLOW SHARE AND POINT.

SPECIFICATION forming part of Letters Patent No. 575,667, dated January 19, 1897.

Application filed December 15, 1896. Serial No. 615,785. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LA DOW, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Plow Shares and Points, of which the following is a specification.

My invention relates to plowshares; and it consists in making the point with chilled sides or edges, having a soft portion between them, whereby the initial form of the point is maintained in use more perfectly than heretofore.

In the accompanying drawings, Figure 1 is a top plan view of a plow share and point as it lies upon the chill for producing the effect above referred to. Fig. 2 is a longitudinal section through a mold, showing the chill in position and the share cast within the mold; Fig. 3, a transverse section through the plow-point; Fig. 4, a perspective view of the chill; and Fig. 5, a view of the other face of the chill, showing a feature of construction which is deemed ordinarily desirable.

In the construction of shares and points of plows the initial form given them is of course that which is deemed most conducive to the desired action of the share and point in the soil, and this form being once ascertained it is obviously desirable that it shall be maintained during the continued use of the implement. With the point of one uniform hardness throughout the edges and corners of the point wear away more rapidly than the intervening portion, and the result is a rounding of the nose of the point, which takes a tapering form, with a rounded extremity, so that there are no well-defined angles left. This change of form not only entails a greater expenditure of power to force or draw the plow through the soil, but it materially interferes with the proper guidance of the implement.

Practical experience has demonstrated that it is entirely feasible to chill through the thickness of a plowshare-point, provided the chill-bar itself be of sufficient thickness and properly applied to the mold, and the inflowing molten metal be of the proper grade for making plowshares. Availing myself of this fact, I employ a chill-bar forked at its end, so that its arms shall coincide with and conform to the lower face of the plow-point. Such a

chill-bar being properly placed within the mold, preferably at the upper side of the matrix in practice, and molten metal being poured into the mold and coming into contact with such chill, there will be produced in the point chilled or hardened side borders and a softer central portion between them.

Referring now to the drawings, Fig. 1 illustrates the relationship of the chill and share, which are represented as inverted with reference to the position they occupy in casting, while Fig. 2 shows them in their actual positions.

A indicates the chill-bar, which is usually made of cast-iron, and which in the present instance is formed with a main body *a* and two arms or branches *b*, the former to act upon the edge in the usual manner and the latter upon the point of the casting. The chill-bar being placed within the mold B in the position indicated in Fig. 2 and molten metal being poured into said mold, the metal rises into contact with the chill and becomes suddenly cooled along the lower edge of the share and along the lower face of the sides or edges of the point, as indicated in Fig. 1. The remaining portion or main body of the share and point being cast directly in contact with the sand of the mold is unchilled and preserves its integrity and tensile strength, and remains relatively soft, the actual direction and extent of the chilling being well illustrated in Fig. 3.

It will be observed that if the chill-bar were made of uniform thickness throughout, including that portion which connects the two forks or arms of the bifurcated end, the point would at that place be chilled throughout its entire cross-section, and consequently weakened to an undesirable degree. I therefore prefer in practice to reduce the thickness of the chill across the portion *c*, which connects the forks or arms, as indicated in Fig. 5 and by dotted lines in Fig. 2. This may be done either by channeling or grooving the section connecting the arms at its back and permitting the sand to occupy said groove or channeled space; or the two branches or arms might be made separate and distinct. This latter, however, is not deemed desirable in practice. It is preferred to graduate the depth of the groove or channel between the

arms *b b*, as indicated in Fig. 5, and this may extend throughout the full length of the point or of arms *b*, if desired.

By the above-described means I produce a
5 plow-point having the chilled side portions or margins *d d*, as illustrated in Fig. 3, and the chilled lower or dividing edge *e*. (Shown in Fig. 1.)

Since the natural tendency of the point is
10 to wear away most rapidly at the angles, because of said angles being subjected to the greatest amount of pressure, friction, and abrasion, the chilled or hardened edges produced as above described will in practice wear
15 away at the same or at about the same rate as the intervening softer portion, so that there will be maintained throughout the chilled and unchilled portions of the point a more uniform rate of wear than heretofore. In other
20 words, the forward corners will be kept up better, and the square edges or angles at the sides and the point will be retained to a far greater degree than where the entire body of the point is of uniform hardness.

25 In the foregoing description I have provided for the chilling of both edges of the point and also for graduating the depth of chilling in the connecting or intervening portion back of the point. It may be desirable
30 in some cases to form a thin skin of chilled metal entirely across the under face of the point, growing thicker each way from the middle and striking entirely through at the sides, and this will be effected by merely
35 channeling the space between arms *b b* of the chill all the way to the point, varying the depth of the channel as desired. Again, it may be desirable in some instances to chill only one side border and to keep up only one
40 of the angular margins of the point, in which case one or the other arm *b* of the chill may

be omitted. These variations are within the scope and spirit of my invention.

Having thus described my invention, what I claim is—

1. As a new article of manufacture, a cast-metal plowshare having its point composed of vertical or substantially vertical strata of alternately hard and soft metal disposed lengthwise therein, the edge strata thereof being
50 hard, substantially as and for the purpose set forth.

2. A cast-metal plowshare-point having its lower marginal portions hardened by chilling, and the intervening portion kept normally
55 soft by its contact with sand during the act of casting.

3. A cast-metal plowshare-point having chilled lower side marginal portions, and an unchilled lower intervening portion substantially as described whereby the greater friction or abrasion to which its corners are subjected is compensated for by their greater hardness, and the rate of receding wear of the chilled and unchilled portion is made more
65 nearly equal.

4. A cast-metal plowshare-point having its lower side arched substantially as described, the under side of the top of said arch being composed of soft metal and the lower parts
70 thereof of hard metal thereby forming runners which elevate the soft portion, whereby the greatest wear of the under side of the point is made to come on the hardest portions thereof.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES LA DOW.

Witnesses:

WILLIAM W. DODGE,
HORACE A. DODGE.