(No Model.)

M. S. & E. L. CADWELL.

PLOW POINT.

No. 396,728. Patented Jan. 29, 1889.

Fig. 1.

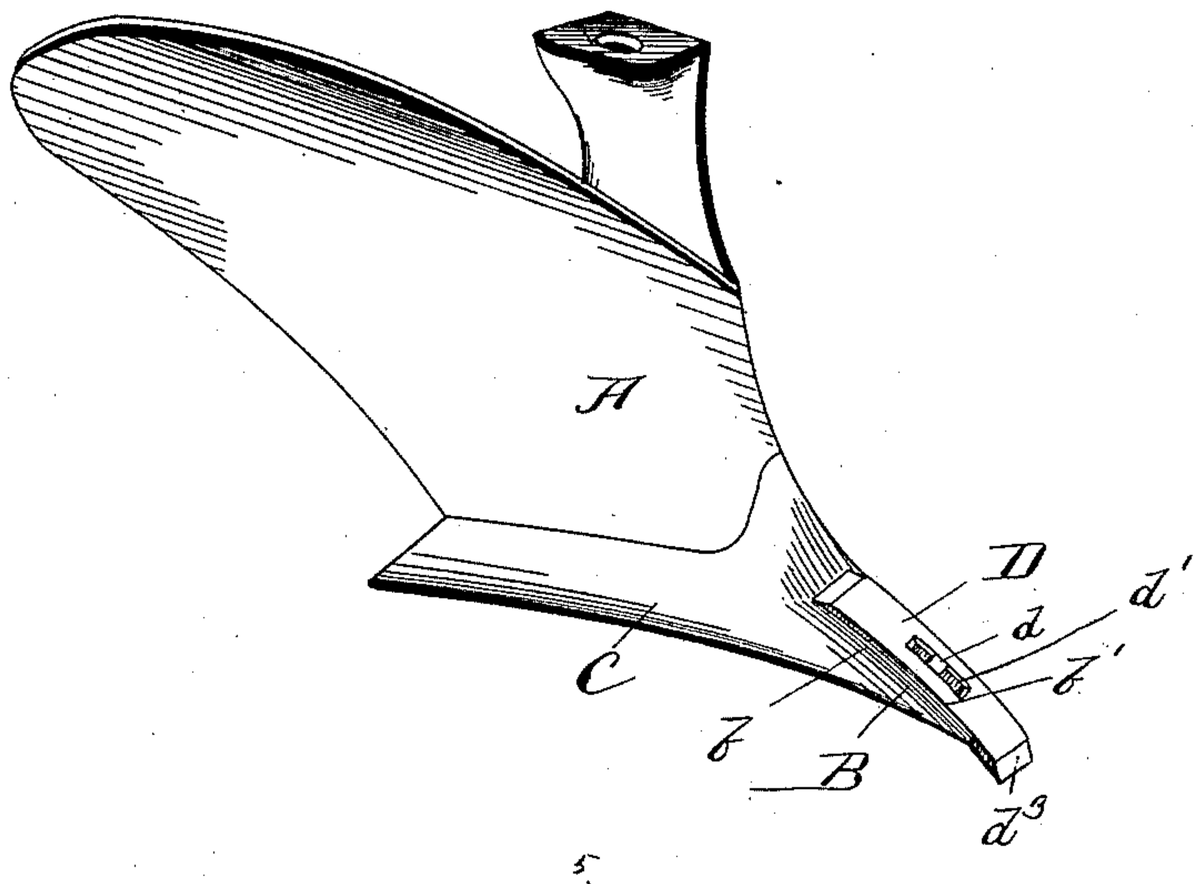


Fig. 6.

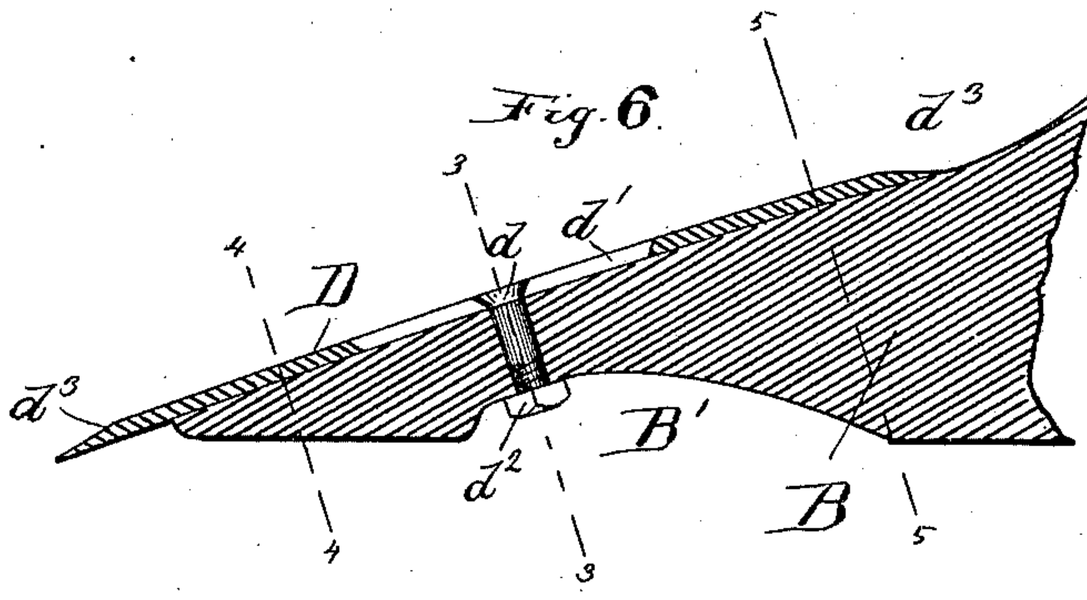


Fig. 3.

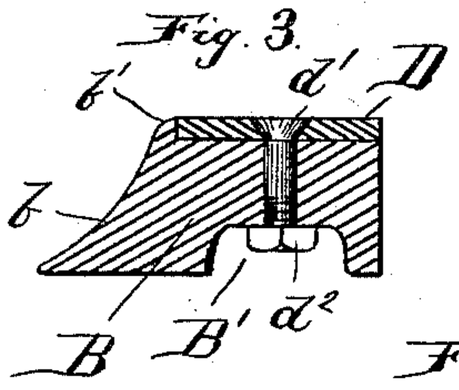


Fig. 4.

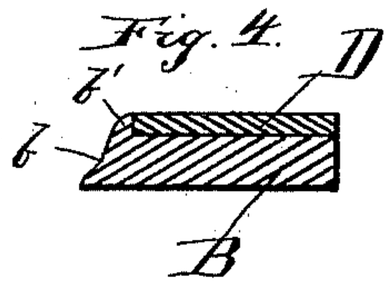


Fig. 5.

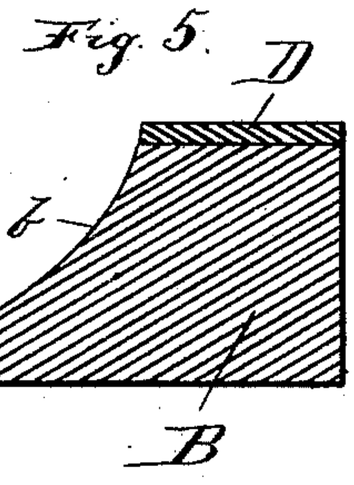
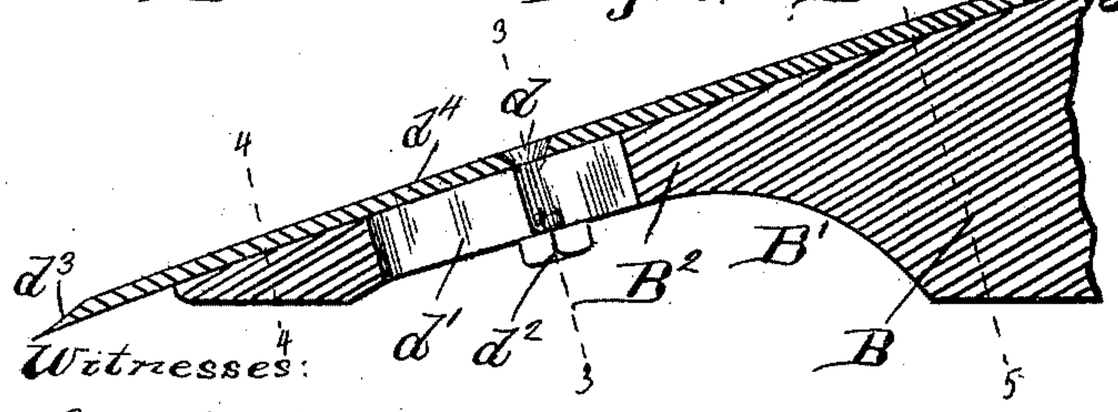


Fig. 2.



Witnesses:
Lew. E. Curtis.
W. M. Munday.

Inventors:
Marvin S. Cadwell.
Edward L. Cadwell.
By Munday, Evarts & Adcock,
their Attorneys.

UNITED STATES PATENT OFFICE.

MARVIN S. CADWELL AND EDWARD L. CADWELL, OF LANSING, MICHIGAN.

PLOW-POINT.

SPECIFICATION forming part of Letters Patent No. 396,728, dated January 29, 1889.

Application filed September 1, 1887. Serial No. 248,500. (No model.)

To all whom it may concern:

Be it known that we, MARVIN S. CADWELL and EDWARD L. CADWELL, citizens of the United States, residing in Lansing, in the county of Ingham and State of Michigan, have invented a new and useful Improvement in Plow-Points, of which the following is a specification.

Our invention relates to points for breaking or mold-board plows.

Heretofore great difficulty has been experienced in keeping the points of mold-board plows in condition and properly sharpened, especially when plowing in dry hard soil. When the soil is dry and hard, it frequently happens that an ordinary plow-point—such as is furnished with the plow by the manufacturer—will become so worn and dulled by a single day's use that it can be no longer used. Where the points are made of cast-iron and integral with the share, as is frequently the case, the usual method is to buy a new point and share to replace the old one as soon as it becomes worn out. These points are usually furnished for about fifty cents apiece; but this entails a constant and pretty heavy expense, even when only one point per day is worn out, and it often happens that two of these cast-iron points are required per day. Where the points are made of tempered steel, they will usually last somewhat longer; but the trouble, loss from delay, and the expense of getting them from time to time sharpened by the blacksmith at the forge leaves little, if any, practical advantage in their use, especially when it is considered that it is practicable to reforge them only a limited number of times.

It is the object of our invention to provide the plow with a self-sharpening supplementary point of a simple and cheap construction adjustably attached to the point of the plow, so that as it wears away it may be moved forward or down, and thus always afford the plow a working-point of proper length, inclination, and proportion to cause the plow to run smoothly, steadily, and with ease both to the workman who guides the plow and to the draft-animals that pull it. Our adjustable self-sharpening supplemental point may be attached to any kind of a plow or to any kind of a plow-point. We prefer, however, on account of cheapness, to employ with or combine with our adjustable self-sharpening supplemental point the ordinary cast-iron point made integral with the share of the plow, as no wear comes or can come upon such cast-iron point when furnished with our invention.

Our invention consists in the novel devices and novel combinations of devices herein shown and described, and more particularly pointed out in the claims.

In our invention the thin plate-steel supplemental point is secured on top of the cast-point part of the mold-board plow, and its cutting end projects beyond the cast point and below the under surface of such cast point. The bottom or lower surface of the cast point and the bottom or lower edge of the landside of a mold-board plow usually unite or extend in a horizontal line, and our supplemental point is so combined with the cast point that its cutting-edge projects below this horizontal line in order to give the requisite "draw" to the plow and to prevent the blunt end of the cast point offering obstruction to the forward movement of the plow. Our supplemental plate-steel point thus combined with the ordinary cast point and landside of the mold-board plow operates on the same principle as the cutting-blade of a carpenter's plane, the cast point and landside of the plow serving as the wooden block of the plane.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a plow embodying our invention. Fig. 2 is a central longitudinal section of the point on line 2 2 of Fig. 1. Figs. 3, 4, and 5 are cross-sections on lines 3 3, 4 4, and 5 5 of Fig. 2. Fig. 6 is is a section similar to Fig. 2, showing a modification wherein the supplemental point, instead of the plow-point, is furnished with a longitudinal slot for the purpose of adjusting the supplemental point thereon as it wears away.

In said drawings, A represents the plow; B, its point; C, its share, which, as shown in the drawings, is cast integral with the point B.

D is the adjustable self-sharpening supplemental point. The point B is somewhat thickened or built up at *b* back of its extreme

edge and furnished with a longitudinal ledge or shoulder, b', extending back about two-thirds the length of the supplemental point D to form a bed for securing and holding the supplemental point in position. The supplemental point D is made of plate or bar steel, and preferably of old flat steel leaf-springs.

The supplemental point should be about an inch and a half wide and from five to eight inches in length, according to the plow-point to which it is to be secured. In practice we usually make these supplemental points about three-sixteenths of an inch in thickness. The supplemental point D is adjustably secured in or upon the bed $b\,b'$, on the point B by means of a plow-bolt, d. This bolt passes through a longitudinal slot, d', which is made either in the point B or in the supplemental point D, so that the latter may be adjusted upon the point B as it wears away. We prefer to make the slot d' in the point B, as indicated in Fig. 2, as thereby the upper surface of the supplemental point is rendered more smooth and will scour better. If the slot, however, is made in the supplemental point D, as indicated in Fig. 6, it will of course fill with dirt and offer very little obstruction. The bolt d is furnished with a nut, d^2, which fits in the recess B′, cut in the under face of the point B, so that the nut and projecting end of the bolt will offer no obstruction to the movement of the plow in the furrow. The shank or portion B^2 of the point B through which the slot d' is cut is made slightly inclined or wedging, as indicated in Fig. 2, so that the resistance which the supplemental point D meets with from the earth cannot slip said point longitudinally backward without further tightening the bolt. By this means the bolt d will serve to securely hold the supplemental point in place and prevent its slipping backward, while the longitudinal ledge or shoulder b' will, in connection with the bolt d, serve to hold the point D from turning on the bolt d as a pivot.

Instead of providing the point or supplemental point, one or both, with a slot or slots, they may be each or both provided with a series of bolt-holes made close together, which will thus afford a means of adjusting the supplemental point. The supplemental point is furnished with a chisel-pointed or sharpened end, d^3, which is preferably ground, sharpened, or inclined wholly from the upper side, as indicated in the drawings. Both ends of the point D are made alike, so that it may be reversed and either end used as the working point of the plow.

Owing to the thinness of the plate or leaf-spring point D, it can never become blunt, and the wear which it receives simply shortens it. The point D will therefore never require forging or grinding. As it wears away, by loosening the bolt d it may easily and quickly be adjusted forward, so that the plow will again have the same length, inclination, and projection of point. The supplemental point fits and rests upon its bed $b\,b'$, and is adjusted up and down like a plane-blade on its stock. The thin plate-steel supplemental point D is preferably given a slight longitudinal curve, d^4, about as indicated in the drawings, the bed b upon which it rests being likewise similarly curved. This curve gives a better working pitch to the plow-point, and enables the point B to be thickened and strengthened at the part through which the slot d' is cut, while at the same time the rear portion of the point B is not unduly raised or thickened.

As shown in the drawings, the supplemental point D, while it is slightly curved or bent longitudinally, is given no twist or lateral curve, the surface of the plow-point and share being built up or thickened by the bed b on the inner or share side of the plow, so that said bed is practically horizontal, as indicated in the cross-sections, Figs. 3, 4, and 5. This we consider the preferable construction, as it thickens and strengthens the cast-iron point B, and also gives a better pitch to the working-point of the plow. If preferred, however, the supplemental point D may be given a twist to a greater or less extent, according to the inclination of the plow-point and share upon which it fits, and the thickness or building up of the point B on the share side may be thus omitted in whole or in part.

The longitudinal ledge or shoulder b' should be in height just equal to the thickness of the supplemental point D, so as to be just flush therewith. This ledge should not extend back the full length of the supplemental point D, but only about two-thirds the length thereof, as indicated in the drawings, so that when one end of the supplemental point has been worn short and the point is reversed to use its other end the ledge b' will not extend up farther than this short or worn end reaches. If this ledge should extend beyond the upper end of the supplemental point D, it would offer an obstruction to the movement of the dirt or soil.

We hereby disclaim the devices shown and described in Letters Patent No. 183,907, of October 31, 1876, to Cook, No. 220,649, of October 14, 1879, to Oliver, and No. 280,777, of July 10, to Anderson and Oliver; and we also disclaim as not of our invention the devices shown and described in Patents No. 80,503 to Ready, of July 28, 1868, and No. 122,729 to McSherry, of January 16, 1872.

We do not herein claim the combination of the mold-board plow and its cast-point part with the twisted thin plate-steel supplemental point secured on the top face thereof and having two cutting-edges lying in different planes, as that is made the subject of claim in our pending application, Serial No. 261,575, filed January 22, 1888; nor do we herein claim any subject-matter which is shown, described, and claimed in our said application, Serial No. 261,575, to which, and to the patent to be granted thereon, reference is hereby made for greater certainty.

We claim—

1. The combination, with point B, provided with longitudinal ledge or shoulder b', of an adjustable self-sharpening supplemental point, D, consisting of a long thin narrow piece of plate or spring steel of even width and thickness, adjustably secured and lying flat upon the upper face of said point B, and bolt d, substantially as specified.

2. The combination, with point B, provided with longitudinal ledge or shoulder b', of an adjustable self-sharpening supplemental point, D, consisting of a long thin narrow piece of plate or spring steel of even width and thickness, adjustably secured and lying flat upon the upper face of said point B, and bolt d, said point B or supplemental point D, one or both, being furnished with a longitudinal slot through which said bolt d passes, substantially as specified.

3. The combination, with point B, furnished with bed b and longitudinal ledge b', of supplemental self-sharpening point D, adjustably secured thereon, and consisting of a long thin narrow piece of plate or spring steel, said ledge b' extending back about two-thirds the length of said supplemental point D, substantially as specified.

4. The combination, with cast-iron point and share B C, cast integrally together and furnished with thickened bed b, and longitudinal ledge b', of self-sharpening, reversible, and adjustable supplemental point D, consisting of a long narrow thin piece of plate or spring steel, said point B being furnished with a recess, B′, on its under face, and an inclined slotted shank portion, B^2, and the bolt d for securing said supplemental point D to said point B, substantially as specified.

5. The combination, in a mold-board plow, of its cast point, share, and landside, with a thin supplemental self-sharpening plate-steel point secured on top of said cast point, with its cutting-edge projecting beyond said cast point and below the horizontal line or lower surface of said cast point and landside, whereby the forward end of the cast point is protected by the overhanging or projecting end of the supplemental point and the cast point is prevented from offering obstruction to the forward movement of the plow, substantially as specified.

MARVIN S. CADWELL.
EDWARD L. CADWELL.

Witnesses:
G. A. ROBERTSON,
M. J. SATTLER.