(Model.)

2 Sheets—Sheet 1.

E. D. MEAGHER.

PLOW.

No. 253,408. Patented Feb. 7, 1882.

Fig. 1.

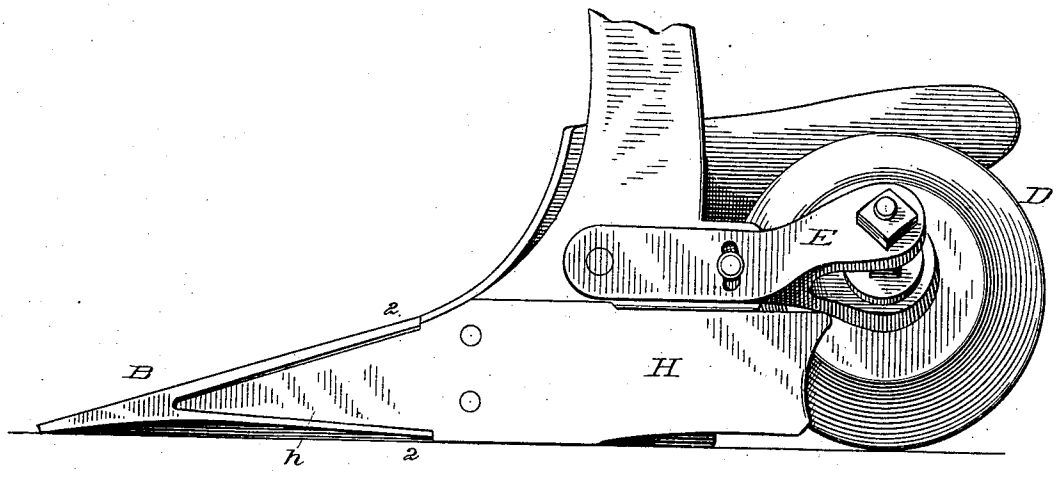
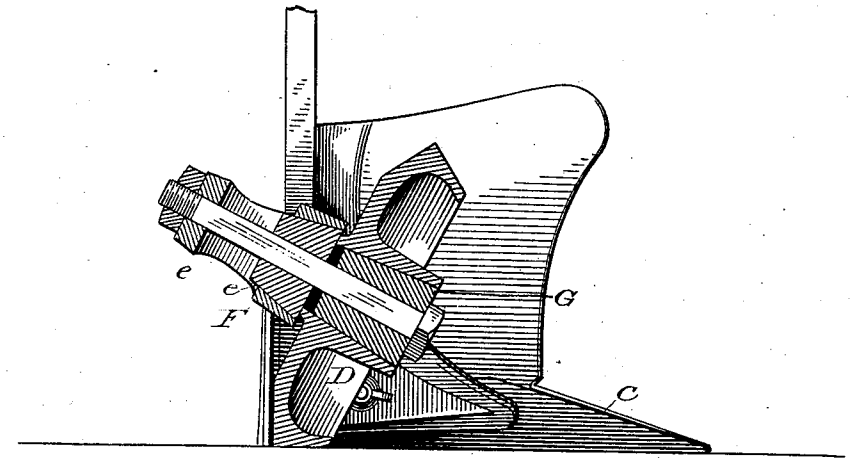


Fig. 2.



Attest:

R. F. Bagnes.

L. N. Sulzy

Inventor:

Edmund D. Meagher

by Elli Spear

Attorney

N. PETERS, Photo-Lithographer, Washington, D. C.

(Model.) 2 Sheets—Sheet 2.

E. D. MEAGHER.

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Fig. 3.

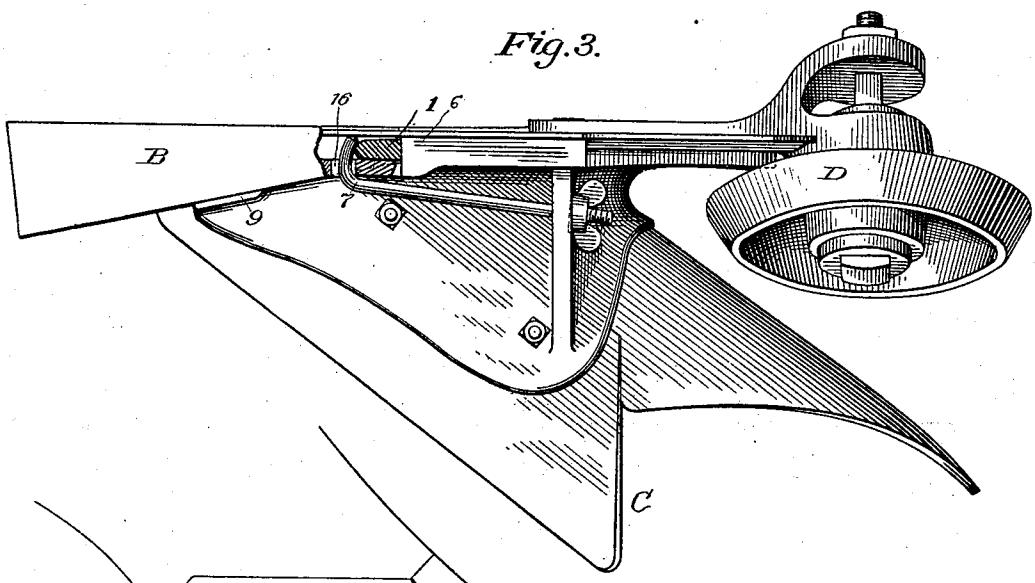


Fig. 7.

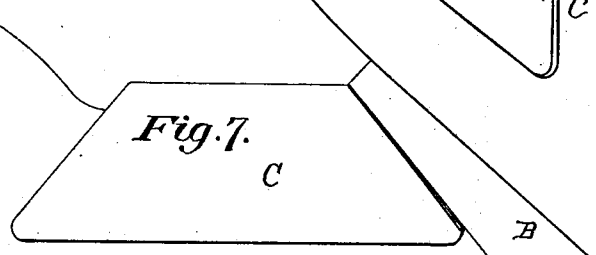
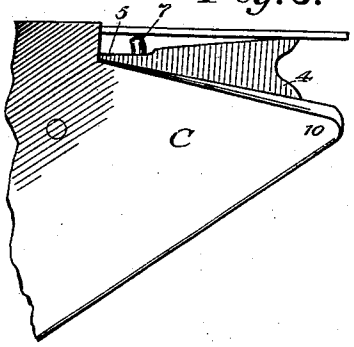


Fig. 4.

Fig. 5.



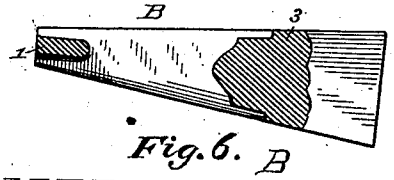
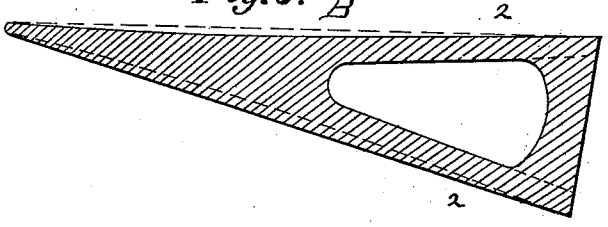


Fig. 6.



Attest:

L. F. Barnes.

L. N. Sulis

Inventor:

Edmund D. Meagher.

by Ellis Spear

Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

EDMUND D. MEAGHER, OF SOUTH BEND, INDIANA.

PLOW.

SPECIFICATION forming part of Letters Patent No. 253,408, dated February 7, 1882.

Application filed July 19, 1881. (Model.)

To all whom it may concern:

Be it known that I, EDMUND D. MEAGHER, of South Bend, in the county of St. Joseph and State of Indiana, have invented a new and useful Improvement in Plows; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to plows, the object of it being, first, to lessen the cost of plowshares by simplifying their construction and giving them increased wear and durability, and, in the second place, to lighten the draft of the plows, thereby obtaining a greater amount of service from the same outlay of power.

With the view to accomplish these objects my invention consists, first, in separating the plowshare into two parts and making each part reversible independently of the other.

It consists, secondly, in combining a spring-land-side with a rear supporting-wheel.

It consists, thirdly, of certain details of construction whereby my said invention is embodied in more efficient form.

In the accompanying drawings I have shown the mode best known to me for carrying out my invention.

In these drawings, Figure 1 represents a land-side view of the plow; Fig. 2, a rear elevation, with the supporting-wheel in section, taken transversely through the center thereof. Fig. 3 shows a bottom view of the plow, and Fig. 4 represents a horizontal section taken a little above the center of the plow-point. Fig. 5 is a plan view, showing the toe of the standard with the point removed. Fig. 6 is a central vertical section of the point. Fig. 7 is a plan view, slightly reduced, of the point and share.

Referring to the first part of my invention, it is well understood that the plowshare wears out most rapidly on the under side, assuming, after short service, a rounded curve approximately in the form of a sleigh-shoe. When the lower edge of the plowshare is thus worn the plow cannot be kept in the ground; and if it be a solid non-reversible share it must be hammered back to its original form; or, if made of material which will not admit of forging, it must be thrown away and replaced by a new one. Further, even if made of material which admits of forging, the nose or point wears out more rapidly than the wings, and therefore it is desirable, in order to save the expense, to replace the point, when it is quite worn out, independently of the wing. I have succeeded in overcoming both difficulties—namely, the rounding upon the bottom and the loss by the premature wear of the point—by the construction shown in Figs. 1 and 3 of the drawings. In these figures the independently-detachable point is shown at B, and more in detail in Fig. 4. It is approximately of wedge shape, broadest at the forward end, and with straight sides tapering to the rear. The top and bottom are made exactly alike, but are not plane surfaces, both being slightly twisted (always parallel to each other) in order to incline the rear portions toward the wing, all as clearly shown in the drawings. The rear portion is recessed, leaving a vertical web, 1, between the upper and lower flanges 2 2, with a thick wedge-shaped web, 3, at the front end of the recess, adapted to fit over the notched end 4 of the standard-foot. In this form the broad tip gives the greatest wearing-surface where it is required, and the heaviest body of metal at the point of contact with the tip of the standard-foot, where there is most danger of breaking. The standard-foot is cut away, as shown at 5, to receive the vertical web 1, which rests against a shoulder, 6, on the side of the standard-foot. Through the side of this foot is a slotted hole, 16, directly in front of the web when in position therein. The hooked end of a bolt, 7, fits into this slot and takes hold of the web 1. The other end of said bolt extends rearward through a brace, 8, supporting the standard-foot, and is provided with a nut, by means of which the hooked bolt may be drawn backward, bringing the point solidly to its bearings on the shoulder 6 and locking-notch in the tip of the standard-foot. When this is in place the upper and lower flanges 2 2 also rest firmly upon the upper and lower faces of the standard-foot, which conforms to them in shape. The point also receives further lateral support by a shoulder, 9, on the under and inner side of the standard-foot. By this construction the point is braced against a blow or shock from above, below, or from either side. The upper surface of the

point, whichever side be uppermost, is flush with that portion of the mold-board against which the rear end of it abuts.

The independently-removable wing is shown at C. It is of symmetrical shape, both in plan and section, and is fitted to the point and mold-board, as shown in Fig. 5. The inclined ends are formed each with a tapering bevel, the taper commencing near the upper edge and increasing downward toward the tip 10, which is preferably slightly rounded, as shown. This bevel is on the upper side of the end which adjoins the point, and the adjoining flanges are chamfered or beveled, so as to fit this inclined bevel upon the wing. This construction brings the upper part of the wing flush with the mold-board and end of the point, where they all meet, thereby forming a smooth uniform surface with the face of the mold-board. The edge of the point which overlaps the edge of the wing gradually increases in depth down to the front edge of the wing. It will be understood that the point is recessed on the sides sufficiently to receive the edge of the wing substantially its entire width. It will be also understood that the tapered chamfer on the opposite end is also upon the opposite side, so that when reversed it assumes the same position in relation to the point as that just described.

It will be clear, from the description heretofore given, that either the point or the wing may be reversed in position. As both wear upon the under surface and become rounded they are to be reversed, when the wear will be brought upon the other side, each reversal turning the rounded edge upward and avoiding the results heretofore specified of throwing the plow out of the ground. This reversal of the parts may continue until they are entirely worn out.

The precise form of the wing is not essential. The contour of it on the line of junction may be changed without departing from the spirit of my invention, so long as the symmetrical shape is preserved, whereby it may be reversed. It is attached to the foot of the standard in the usual manner, and, like the point, is practically self-sharpening.

The second principal part of my invention has for its object the reduction of the draft by lessening the friction of the plow as it passes in frictional contact with the bottom and with the land side of the furrow.

It is well known that next to the share the rear side and bottom of the landside wear most rapidly, showing that friction is severe at those points. Attempts have been made to lessen this friction by means of a wheel, both in connection with and without landsides; but they have not been found practical or effective in all kinds and conditions of soil. When the wheel was used in connection with a rigid landside, the latter, receiving part of the side pressure, caused the wheel to slip when in wet, soft ground. When used without a landside, dry earth, clods, and stones falling from the furrow-bank in front of the wheel impeded it, and gave the plow an unsteady, irregular movement. This I avoid by the use of a spring-landside, which, exerting only sufficient resilience to prevent the furrow-bank from crumbling, keeps the furrow-bottom clear of loose earth, clods, and other obstructions until the wheel passes, yielding sufficiently to throw the greater part of the friction upon the wheel.

The situation of the wheel in relation to the landside and the special construction and manner of mounting are shown in Figs. 2 and 3.

The wheel marked D has a double-beveled tire, one side of which coincides with the bottom and the other with the side of the furrow. It is made and set at the angle which will equalize the side and downward pressure of the furrow-slice in turning.

In connection with the wheel I use the landside H, made of steel or other elastic material, bolted solidly to the side of the standard-foot in front, with sufficient bearing to secure it in position, while the remainder of the landside is left free and unsupported. This landside, which may also be made of non-elastic material, actuated by a spring, projects at the heel, when not in use, outward in the direction of the bank of the furrow, beyond the horizontal face of the wheel. When in use the pressure of the furrow-bank springs the landside inward and throws the friction or side pressure of the moving furrow on the wheel, the landside proper having only the necessary tension required to keep the face of the furrow-bank from crumbling down, thus preventing loose earth and clods from falling in front of the wheel. The landside H is preferably made elastic, and extends forward to a point, *h*, and to fit into and press against the recessed side of the point B; but a separate piece may also be used for this purpose.

The wheel is mounted on a coupling, E, provided with arms *e e*, attached to the frame-work of the plow by a slotted joint, the purpose of which is to admit of the wheel being raised or lowered, giving the plow more or less pitch or "suction," as the condition of the ground and edges of the share may require. A dust-proof anti-friction compensating-bearing connects this coupling with the wheel, as shown in Fig. 3. The bearing G is fitted into the hub of the wheel, that portion of it embedded in the hub being cone-shaped, its length being graduated so that it will not project through to the upper face of the wheel, which is provided with a flange surrounding the bearing. Another cone-shaped bearing, F, is fitted into a cup in one of the arms of the coupling E, and a square bolt-hole is cut through the other arm of the coupling E and through both bearings. When connected, the flange of the wheel rests against the bearing F, and a square bolt passing through the bearing G, bearing F, and coupling holds the wheel, bearings, and coupling together. The bearings remain stationary, the square bolt preventing them from revolving with the wheel. The wheel, hub, and coup-

ling are made of metal, and the bearings of wood, rawhide, or other suitable material. As the outer surface of the bearing G wears smaller when the bolt is drawn sufficiently to compensate for the wear, this bearing G, being cone-shaped, is drawn farther into the hub of the wheel, which retains a fit until the cone-bearing becomes worn so much that its inner end will rest against the bearing F. The drawing up of the bolt also takes up any wear in the end of the bearing F caused by the flange of the wheel revolving against it. The bolt should be drawn up just enough to bring the parts into contact, but not enough to cause them to bind.

I have thus described what I consider the best mode of carrying out my invention; but I wish it to be understood that I do not confine myself to the precise forms shown so long as the essential features are not changed. For example, the landside may be made of more than one piece and of non-elastic material with a separate spring, as heretofore indicated. Nor do I regard my invention as necessarily limited to a wing made with the upper and lower sides plain, as it may be made with curved or twisted faces without destroying the symmetry thereof, presenting an upward-inclined curve at the outer corner and a downward-inclined curve at the inner corner, or that which engages with the point. So, also, the bearings may be essentially modified, or may be used in the form shown with other forms of wheel in other positions upon a plow, whether of the walking or riding class. I contemplate also modifying the parts so as to adapt them to a plow having an inclined landside.

I am aware that independently-removable points and shares are not new, and also that an independently removable and reversible point and share have been heretofore known, such being shown in the patent of Bergen of 1819, and in the patent of Reynolds, No. 12,398, of 1855, and I do not broadly claim these features.

I am also aware that a hooked rod for holding on the point is not new; also, that cones for taking up the wear of the bearings in revolving colters are not new.

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

1. A reversible plow-point having symmetrical upper and lower faces, upper and lower flanges, and a connecting-web at the rear edge adapted to the foot of the standard, substantially as described.

2. A plow-point removable and reversible, having symmetrical upper and lower faces, the thickened central portion adapted to rest against the notch in the tip of the foot, and the connecting-web, substantially as described.

3. The wedge-shaped plow-point, wide at the front end and tapering to the rear, having the thickened central portion, and web adapted to the foot of the plow-standard and to the wing, substantially as described.

4. In combination with the described plow-point, having upper and lower flanges and connecting-web 1, the hooked rod extending through the brace 8 and adapted to draw back the point upon its bearings, substantially as described.

5. The combination of the plow-point, having upper and lower flanges, with the foot of the standard having inclined upper and lower faces and side recessed, and shoulder and notch in the tip thereof, all adapted to furnish solid bearing for the point, substantially as described.

6. The reversible wing C, having the inclined bevels on opposite faces and ends tapering from upper to lower edge adapted to the recessed reversible point B, and in combination therewith, substantially as described.

7. The combination, in a plow, of a supporting landside-wheel and an elastic landside, substantially as described.

8. The combination, with a supporting and landside wheel adapted to be vertically-adjusted, of a landside, H, having a rear portion partially overlapping the wheel and normally in a plane outside the vertical face of the wheel, as described.

9. The landside H, having the rear portion elastic and partially overlapping the wheel and the forward portion covering the recess in the point B, the parts being combined as described.

10. In combination with the coupling E, having arms *e e*, and the wheel D, the described bearing, consisting of the cones G and F, and the connecting-bolt adapted to draw upon both cones, substantially as described.

11. The combination of the wheel having the annular flange, the cones G and F, coupling E, and the connecting-bolt, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDMUND D. MEAGHER.

Witnesses:
FREDERICK W. STRAUS,
JACOB STRAUS.