

July 7, 1970

G. FENET

3,519,084

COMPOSITE PLOWSHARE

Filed Aug. 14, 1968

2 Sheets-Sheet 1

Fig.1

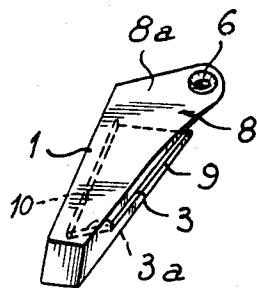


Fig.2

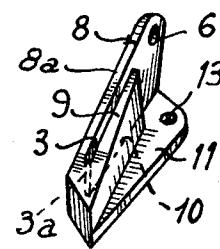


Fig.3

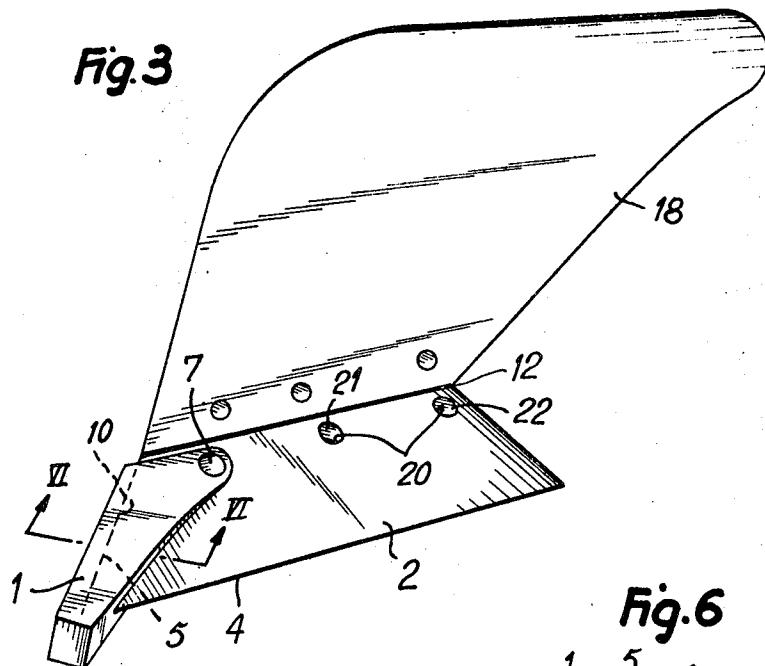
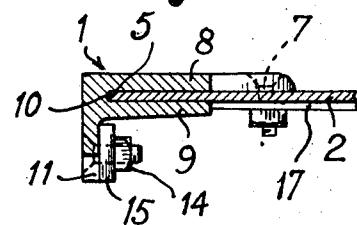


Fig.6



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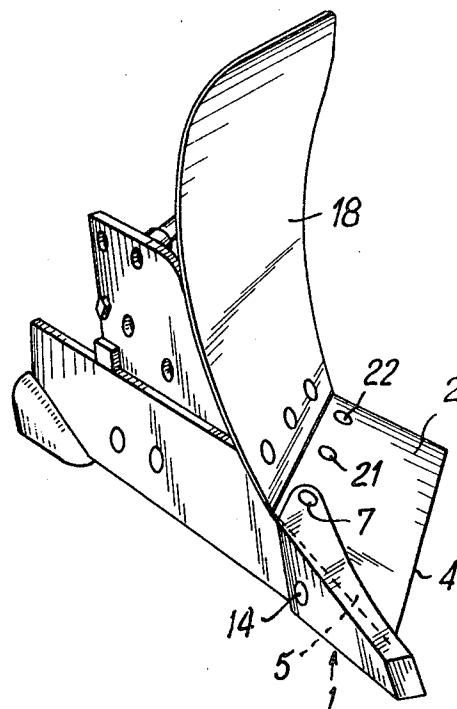
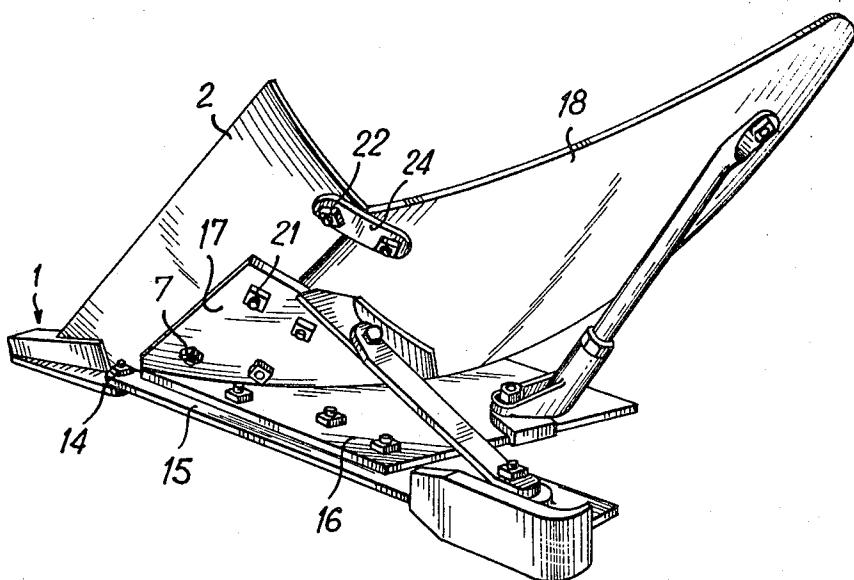


Fig. 5



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## COMPOSITE PLOWSHARE

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2 Claims

### ABSTRACT OF THE DISCLOSURE

A plowshare having a blade, the front of the blade defining a cutting edge, and a tip portion which is removably attached to the side of the blade. The blade is removably attached to a sole member and the tip portion also releasably engages a counter-sole. The tip portion is comprised of two flanges, one of the flanges having a blade edge receiving slot therein, the two flanges defining a substantially L-shaped member.

### BACKGROUND OF THE INVENTION

#### Field of the invention

The present invention relates to the working of the soil. More particularly, the present invention is directed to plows. Accordingly, the general objects of the present invention are to provide novel and improved methods and apparatus of such character.

#### Description of the prior art

The plowshares employed as a rule on plows consist of an element of forgeable metal having a generally trapezoidal shape and one extremity which tapers at an acute angle to form a point or tip. The point extends rearwards in a blade which has a cutting edge along its lower face.

Plowshares of the above-described type are costly and wear out quickly. Accordingly, an overthickness has, as a rule, been incorporated in order to allow this type of plowshare to be reforged after a definite period of service thereby avoiding too frequent replacement.

To eliminate the need for a reforging operation, which is tricky and laborious, it has been contemplated to produce plowshares consisting of two parts. Such composite plowshares are comprised of a tip portion and a blade portion, the tip portion simply being bolted to the corresponding extremity of the blade portion.

Unfortunately, composite plowshares have to date not given complete satisfaction and their adaption has resulted in production of slades or soles, blades and tip portions of very special configuration, so that such composite plowshares could not be fitted to all existing plows.

It was discovered moreover that the fastening of a tip portion on a plow blade simply by employing bolts did not provide sufficient strength.

### SUMMARY OF THE INVENTION

It is an object of the present invention to produce a composite plowshare which can be fitted on all kinds of plows without having to modify the latter and, above all, without having to replace the slade or sole, replacement being a troublesome matter.

The present invention resides in a composite plowshare possessing a blade of generally trapezoidal shape whose long base forms the cutting edge. The present invention also contemplates a removable tip portion intended to be secured to the short front side of the blade, the blade being secured on a slade or sole of substantially V-shape and comprising two flanges, one of which carries

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the blade and the other of which carries a counter-sole. The tip portion is generally L-shaped and forms first and second flanges, the said first tip flange being endowed with a slot which receives the corresponding short front side of the blade whereby the lower leading corner of the blade fits into the slot of the tip and is guarded thereby. The second tip flange is secured against the outer lateral surface of the counter-sole or slade so that it may be easily detached.

10 In accordance with the present invention, a plowshare is obtained in which the connection between the blade and the tip portion is robust and perfectly rigid, and which may be dismantled easily for replacement of the tip portion or of the blade when one of these parts has become worn.

15 It has equally been observed that, as an added advantage of the present invention, the drawbar pull to be exerted on the plow is smaller than that required for conventionally equipped plows. This advantage results 20 from the fact that the second branch of the tip portion does not rub against the edge of the furrow cut in the soil along its entire length, it being only an offset branch of the tip which rubs against the furrow edge.

### 25 BRIEF DESCRIPTION OF THE DRAWING

The foregoing and other objects and advantages of the present invention will become obvious to those skilled in the art and the invention may be better understood by reference to the accompanying drawing wherein like reference numerals refer to like elements in the various figures and in which:

FIGS. 1 and 2 are perspective views of a preferred embodiment of a plowshare tip designed for use in the present invention, the tip portion being seen from the front and from underneath, respectively, in FIGS. 1 and 2.

35 FIG. 3 is a perspective front view of a preferred embodiment of the complete plowshare of the present invention.

40 FIG. 4 is a perspective front view of a plowshare mould-board, sole and counter-sole assembly.

45 FIG. 5 is a view in perspective, as seen from below, of the assembly of FIG. 4.

FIG. 6 is a sectional view along the line VI—VI of FIG. 3.

### 50 DESCRIPTION OF A PREFERRED EMBODIMENT

With reference now to FIG. 3, a plowshare is shown as being comprised of a blade 2, possessing a cutting edge 4, and a tip portion 1 intended to be secured to the corresponding front end of blade 2.

55 The tip portion 1 is illustrated in perspective in FIGS. 1 and 2. The tip portion is substantially L-shaped and is defined by a first branch 8 and a second branch or flange 11. The first branch 8 of tip 1 possesses a slot 3. The slot 3 is defined by a lower member 9, an upper member 8a and a bottom member 10. The bottom 10 of the slot 3 subtends an acute angle, at the side opposed to the flange 11, with the inner edge 3a of the slot connecting it to the lateral opening defined by members 8a and 9. The member 8a projects considerably beyond the member 9 and has a reamed hole 6 adjacent its free end. The flange 11 has a reamed smooth hole 13 therein. As may be seen from FIG. 6, the slot 3 in tip portion 1 is intended to receive the blade 2.

60 The blade 2 is of generally trapezoidal shape, its lower edge forming the long base which comprises the cutting edge 4. The small base 12 of blade 2 is connected by an edge 5 to the cutting edge 4. The edge 5 of blade 2 subtends an acute angle with cutting edge 4, this angle corresponding to the acute angle subtended between the bottom 10 and the inner rim 3a of slot 3 in tip portion 1.

As may be seen from FIGS. 5 and 6, the smooth hole 13 in flange 11 of tip portion 1 is intended to be traversed by a bolt 14 assuring the fastening of the tip portion to a counter-sole 15 which is in turn bolted to a sole 16. Sole 16 is a V-shaped conventional bearer element and possesses a flange 17 intended to receive the blade 2 and the mould-board or breast 18 of the plow. 5

Along the short base 12, the blade 2 has a plurality of smooth reamed holes 20. The hole 20 situated adjacent to the edge 5 is located such that when the blade 2 has 10 its edge 5 engaged in the slot 3 between the members 8a and 9, the edge 5 thus being in abutment with the bottom 10 of slot 3, the said hole 20 coincides with the hole 6 in tip member 8a to allow passage of a fastening bolt 7. Bolt 7 also traverses a hole of the flange 17 of the 15 sole 16. The other two of holes 20 are intended to receive bolts 21 and 22 traversing, respectively, a hole in a small bar or strap 24 flange 17 of sole 16 and a hole in a small bar or strap 24 on which the mould-board or breast 18 is bolted.

It will be readily understood that, by unscrewing the 20 bolts 7 and 14, the tip portion 1 may be removed for replacement. The blade 2 is equally removable and replaceable, such removal being permitted merely by unscrewing the bolts 21 and 22. 25

Due to the novel structure of the tip portion 1, the 25 latter may be fitted on all plows with a blade such as blade 2. The member 9 being comparatively short obviates the need for modification of the sole shape. The member 8a of the tip portion 1, thanks to its extension, can possess a hole 6 positioned in precise alignment with 30 the hole wrought in the sole of any plow for the fastening of the blade. Finally, the shape of the slot 3 as well as the method of fastening by means of the bolts 7 and 14, ensure that the plowshare according to the present invention is of a strength equal to that of one-piece plowshares. 35

As will be apparent to those skilled in the art from FIGS. 4 and 5, since the flange 11 of tip portion 1 projects beyond the counter-sole 15, the friction of the counter-sole against the side of the ridge in the furrow is 40 reduced thus requiring a lesser drawbar pull for the plow during plowing.

While a preferred embodiment has been shown and described, various modifications and substitutions may be made thereto without departing from the spirit and scope of the present invention. Accordingly, it is to be understood that the present invention has been shown by way of illustration and not limitation. 45

What is claimed is:

1. A composite plowshare comprising:  
a blade of generally trapezoidal shape, the longest side edge of said blade forming the plow cutting edge;  
sole means;  
means removably attaching said blade to said sole means;  
a substantially L-shaped tip portion, said L-shaped tip portion being removable and having a blade receiving slot formed therein, said slot being accepting and protecting the lower leading edge of the blade, said L-shaped tip portion including  
first and second members which define said blade receiving slot therebetween, said first member being longer than said second member and having an aperture therein; and  
a third member, said third member forming a flange extending from said first and second members and having an aperture therein;  
means removably attaching said third member of said L-shaped tip portion to said sole means; and  
a bolt which extends through said blade and first member and also engages said sole means for attaching said first member of said L-shaped tip portion to said blade.

2. The apparatus of claim 1 wherein said sole means comprises:

- a substantially V-shaped sole having first and second flanges, said first sole flange being attached to said blade; and  
a counter-sole mounted from said second sole flange, said tip portion third member being attached to said counter-sole.

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U.S. Cl. X.R.

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