



# UNITED STATES PATENT OFFICE.

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## PLOW-RUDDER.

1,206,279.

Specification of Letters Patent. Patented Nov. 28, 1916.

Application filed April 6, 1916. Serial No. 89,421.

*To all whom it may concern:*

Be it known that I, ARTHUR M. WHITE, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Plow-Rudders, of which the following is a specification.

My invention relates to plow rudders or devices for resisting lateral movement of the plow while the same is at work and is intended more particularly for application to cotton plows or middle burster plows, although it is adapted to be attached to any type of plow.

The present invention seeks to provide a device which is simple in the construction and arrangement of its parts and which will be strong and durable.

One object of the invention is to provide a rudder which may be secured to the under face of a plow standard so that the weight of the standard may be utilized to hold the rudder to its work and strain upon the securing bolts thereby relieved, and a further object of the invention is to provide means whereby the blade or rudder knife will be firmly secured in place and may be removed without requiring the removal of the entire device from the plow. The invention also has for its object the provision of fastening means which will securely hold the rudder blade or knife and will positively prevent warping of the blade so that it will effectually perform its intended function throughout its life.

Other incidental objects will appear in the course of the following description and the invention resides in certain novel features which will be particularly pointed out in the claims following the description.

The invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a plow standard having my improved rudder applied thereto; Fig. 2 is a detail section through the rudder blade or knife upon the line 2—2 of Fig. 1; Fig. 3 is a detail perspective view of the several parts of the rudder bar or heel disassembled but approximately in their proper relative positions.

The plow standard 1, illustrated in the accompanying drawings, has a rounded rear corner or heel 2 and a flat lower surface 3 which extends forward to the front mem-

ber of the standard to which the plowshare is to be secured. The rudder or heel bar 4 will be secured directly against the under edge 3 of the plow standard and in the present instance is provided with an upstanding flange 5 at one side in which is formed a vertical slot 6 and is also provided with a concave wall or seat 7 adapted to fit against the rounded lower corner 2 of the plow standard. Through the forward portion of the rudder bar 4 a bolt 8 is inserted upwardly and this bolt also passes vertically through the lower portion of the standard and is equipped with a nut 9 upon its upper end which is turned home against the standard so as to secure the rudder bar firmly to the lower edge of the same. The head of this bolt will preferably be countersunk in the rudder bar so that it will not offer an obstruction to the easy travel of the bar and will not tend to collect dirt from the furrow so as to increase the draft of the plow. A securing bolt 10 is inserted horizontally through the slot 6 and through a bolt hole provided in the lower rear portion of the plow standard and this bolt serves to secure the rudder bar to the standard so that it will be held against relative lateral movement. The slot 6 will permit a limited vertical adjustment of the rudder bar so that it may be readily adapted to slight inequalities in the plow standard or rudder bar which are ordinarily due to casting the parts. This adjustment also permits the device to be set so as to compensate for wear. While I have illustrated this particular construction of the forward portion of the rudder or heel bar, it is to be understood that my invention is not limited to this particular form and that the exact shape or size of the forward portion of the rudder bar is immaterial.

With some forms of plow standards the bar will have a flat upper surface in its forward portion and both securing bolts will be inserted vertically upward therethrough to attach the bar to the plow. It is desirable, however, in all cases to have the rudder bar secured to the lower edge of the standard as it can be thereby more accurately held in the line of the plow and in the middle of the furrow and will exert less strain upon the securing bolts than in forms heretofore devised so far as I am aware. By securing the rudder bar directly

against the lower edge of the lower end of the standard, the weight of the standard is utilized to hold the bar to the bottom of the furrow and by providing fastening devices at spaced points, the bar is secured rigidly to the standard so that it cannot readily become detached therefrom. As the standard rests directly upon the forward portion of the rudder bar, the bar will be held to the bottom of the furrows even though one of the fastening devices should become loose or even entirely disconnected. The rear end of the rudder bar is thickened and cut away at one side so as to provide a recess 11 in which the blade or rudder knife 12 is received. A transverse vertical shoulder 13 is formed at the front end of this recess and vertically spaced projections or lugs 14 are formed upon the side wall of the recess at the rear end of the same, as clearly shown in Fig. 3. A filling and clamping block 15 is fitted in the recess against the blade and this filling block has its front end provided with a lug or projection 16 which is adapted to seat in a depression or notch 17 in the front vertical shoulder 13 at an intermediate point of the height thereof, as will be readily understood while the rear end of the filling and clamping block is provided on its inner face with recesses 18 adapted to fit over the projections or lugs 14 and with an intermediate tongue or rib 19 which is adapted to enter and fill the notch or groove 20 between said lugs or projections. The rear end of the rudder bar is provided on its upper side with an enlargement 21 through which a bolt hole 22 is formed and the block 15 is provided with a similar enlargement 23 having a bolt hole 24 therethrough. The blade or knife is provided with a longitudinal slot 25 and a clamping bolt 26 is inserted through the aligned openings 24 and 22 and the said slot 25 to secure the parts together. The head of the bolt is preferably countersunk in the outer surface of the filling block and a nut 27 is mounted upon the threaded end of the bolt and turned home against the outer side of the end portion of the rudder bar to firmly clamp the several parts together. The ends of the rudder blade or knife are similar in shape and both ends and one edge are beveled, as shown at 28, so that it will more readily enter the ground. The rear blunt edge of the blade abuts the forward faces of the lugs 14 and said lugs, therefore, receive the thrust of the blade. The front edge of the blade will preferably rest against the vertical shoulder 13 so that the blade will be held firmly between said shoulder and the lugs 14 and twisting of the blade will be thereby prevented. The opposed faces of the recess 11 and the clamping and filling block 15 will bear against the sides of the blade, as shown clearly in Fig. 2, and will thereby effect an extended engagement with

the blade so that it will be firmly supported and secured in place. As the working end of the blade wears away, it can be easily adjusted to compensate for wear by merely loosening the nut 27 and slightly relieving the pressure of the block 15 against the blade whereupon the blade will drop by reason of the slot 25 passing around the bolt 26 and the blade will, of course, be secured in its new position by again turning the nut home, as will be readily understood. After one end of the blade has been worn away, the blade may be inverted so that the unused end may then be caused to enter the ground and the steering of the plow facilitated until the entire blade has been worn down.

It will be readily noted that my improved rudder is exceedingly simple in the construction and arrangement of its parts. The rudder bar may run in the bottom of the furrow and thereby aid in steering the plow and also hold the blade more firmly in the soil at the bottom of the furrow. When it is necessary to renew the blade, the block 15 may be easily removed in a very short period of time so that a new blade may be placed in position with practically no loss of the use of the plow. The provision of the lug 16 and notch 17 and the members 14, 18, 19 and 20 effect an interlocking engagement between the block 15 and the rudder bar so that the strain upon the bolt 26 is minimized and the work of bringing the filling and clamping block into its proper position relative to the end of the rudder bar is facilitated.

Having thus described the invention, what is claimed as new is:

1. The combination with a plow standard having a flat lower face and curved heel pierced by a bolt receiving opening, of a rudder bar having its front portion bearing against the flat lower face of the standard and provided with an upstanding flange having a slot therein, the said bar at the flange being provided with a curved wall conforming to the shape of and adapted to bear against the curved heel, the rear end of the rudder being extended longitudinally in a straight line beyond the heel of the plow standard, a bolt passing transversely through the opening in the heel and the slot in said flange, a second bolt disposed at substantially right angles to the first mentioned bolt and extending upwardly through the bottom of the rudder at the forward end thereof and through the flat lower face of the heel, and a vertically disposed blade mounted on the extended end of the rudder.

2. A rudder attachment for plows including a bar having a recess formed in one side thereof and defining spaced shoulders, the forward shoulder being provided with a horizontal notch and the rear shoulder being provided with a groove defining spaced lugs, a

vertically disposed blade seated in the said recess and bearing against the bar, a clamping plate bearing against the blade and having one end thereof provided with a projection  
 5 seated in the notch and its other end formed with a rib engaging the groove, and means piercing the clamping plate, blade and bar for securing the parts in assembled position.

10 3. A rudder including a bar having means at one end thereof for attachment to a plow and having a recess formed in one side thereof at the other end of the bar, said recess defining front and rear shoulders, the  
 15 rear shoulder being formed with a notch and the front shoulder provided with a groove defining spaced lugs, there being a vertically thickened portion formed on the bar at said recess and pierced by a trans-  
 20 verse opening, a clamping plate having one end thereof provided with a projection adapted to seat within the notch and its other end provided with spaced cut away portions adapted to receive the lugs and defining an intermediate rib adapted to enter  
 25 the groove, said clamping plate being also

formed with a vertically thickened portion pierced by a transverse opening disposed in alinement with the opening in the thick-  
 30 ened portion of the bar, a vertically dis- posed blade bearing against the bar at said recess, and a clamping bolt extending through the openings in the thickened por-  
 tions of the clamping plate and bar and through a slot in the blade for clamping the  
 35 parts in assembled position.

4. A rudder including a bar having means at one end thereof for attachment to a plow and having its other end at one side pro-  
 40 vided with a seating recess, there being ver- tically spaced lugs at one end of the recess and a vertical shoulder at the other end thereof, a blade seated in said recess and bearing against the side of the bar between  
 45 said shoulder and lugs, a clamping plate having interlocking engagement with the shoulder and lugs and bearing against the side of the plate, and means for clamping the plate and blade on the bar.

In testimony whereof I affix my signature. 50

ARTHUR M. WHITE. [L. s.]

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