F. CRAWFORD.

MOWER AND HARVESTER ATTACHMENT.

APPLICATION FILED AUG. 11, 1917.

1,272,628.

Patented July 16, 1918.

2 SHEETS—SHEET 1.

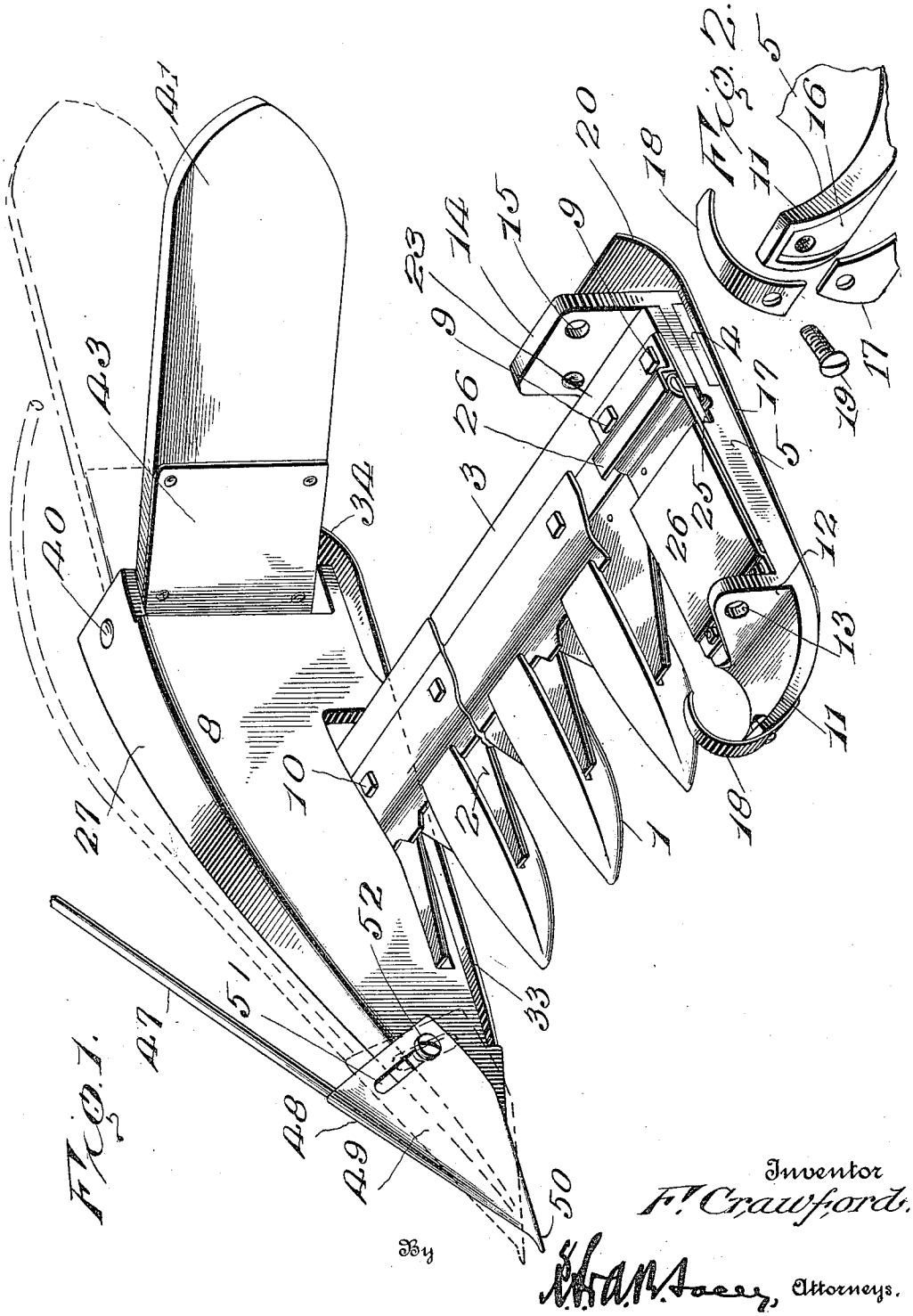


Fig. 1.

Fig. 2.

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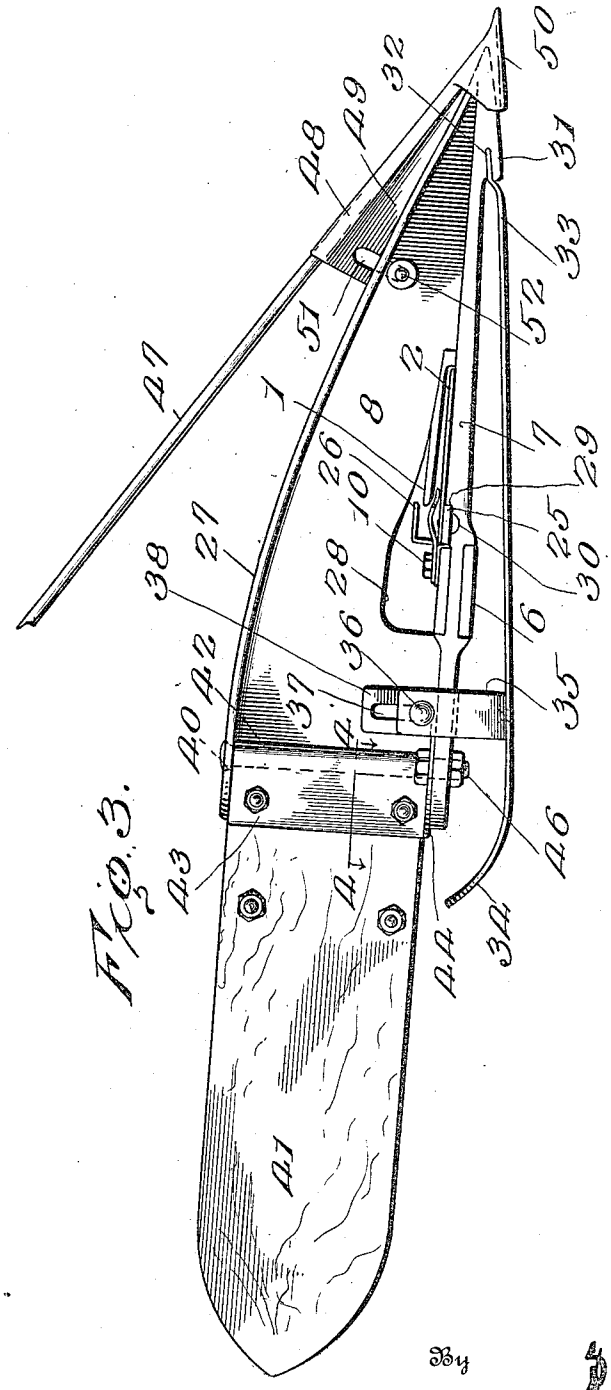


FIG. 3.

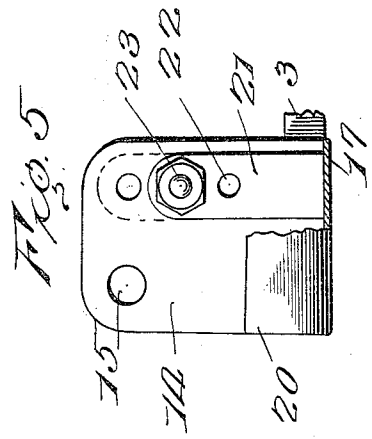


FIG. 5.

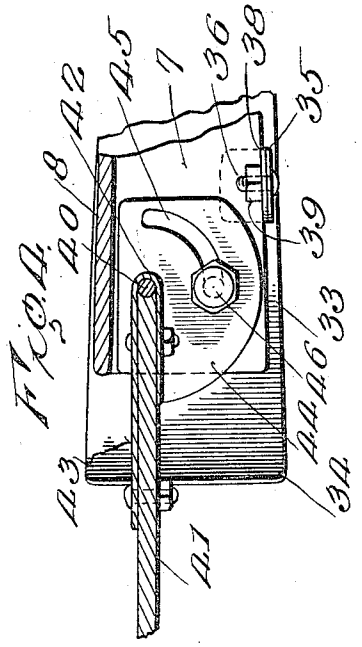


FIG. 4.

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UNITED STATES PATENT OFFICE.

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MOWER AND HARVESTER ATTACHMENT.

1,272,628. Specification of Letters Patent. Patented July 16, 1918.

Application filed August 11, 1917. Serial No. 185,694.

To all whom it may concern:

Be it known that I, FRED CRAWFORD, a citizen of the United States, residing at Prosser, in the county of Benton and State of Washington, have invented certain new and useful Improvements in Mower and Harvester Attachments, of which the following is a specification.

My invention relates to cutting apparatus for mowers and harvesting machines and has special reference to the means for supporting the finger bar and for dividing the grain.

The objects of the invention are to provide inner and outer shoes which may be easily set to hold the cutter at any desired height above the surface of the ground; to provide novel means for securing the divider board at any desired angle; and to provide novel means for supporting and adjusting the divider rod. These stated objects as well as such other objects as will incidentally appear in the course of the following description, are attained in the mechanism illustrated in the accompanying drawings which show what I now believe to be the best embodiment of the invention.

In the drawings:

Figure 1 is a perspective view of a cutting apparatus having my improvements applied thereto.

Fig. 2 is a detail perspective view of a portion of the front end of the inner shoe showing the parts disassembled but in their proper relative positions.

Fig. 3 is an elevation of the outer shoe with the divider board and the divider rod mounted thereon.

Fig. 4 is a horizontal section on the line 4—4 of Fig. 3.

Fig. 5 is a rear elevation of the inner shoe with a portion broken away.

The guard fingers 1 may be of any desired construction and the cutters 2 reciprocate through them in the usual manner. The guard finger bar 3 is provided at its end with an intermediate longitudinal recess thereby forming tongues or tenons 4 which are adapted to fit in transverse recesses provided therefor, in the body 5 of the inner shoe, and at its opposite end said finger bar is provided with similar tenons or tongues 6 adapted to fit within transverse recesses provided therefor in the lower web 7 of the outer shoe 8. This construction enables me to fit the shoes to the finger bar rapidly and accurately and after securing bolts 9 and 10 are inserted through the ends of the finger bar and the respective shoes, the parts will be rigidly secured together so that the shoes will be disposed at right angles to the finger bar and cannot be readily displaced.

The inner shoe consists of a body 5 having its front end 11 curved upwardly and forwardly so as to form a runner which will readily glide over the surface of the field, and near its front end the said body is provided with an upstanding rib or lug 12 having an opening 13 therethrough near its upper extremity.

At the rear end of the shoe 5 is a flange or rib 14 having an opening 15 therethrough near its upper end, the openings 13 and 15 being intended to receive bolts or other fastening devices by which the shoe is secured to the usual coupling bar of the mowing machine. The front upturned end of the shoe is recessed as shown at 16 to receive the front upturned end of a supplemental shoe 17 which fits within the said recess, and over the said upturned end of the supplemental shoe is fitted a toe or curved guard 18, a bolt or screw 19 being inserted through the ends of the said toe and the supplemental shoe into the extremity 11 of the main shoe or runner to secure the parts together. The rear end of the supplemental shoe 17 is turned upwardly, as shown at 20, so that when the cutter is rocked in the operation of the machine the rear end of the shoe will not dig into the ground. Adjacent the rear upturned extremity of the supplemental shoe a short standard or post 21 rises therefrom to fit against the rear face of the flange 14 and the said standard 21 is provided with a plurality of openings 22 through any one of which and the flange 14 the securing bolt 23 may be inserted so as to hold the supplemental shoe in any desired position and thus support the inner end of the cutter at the desired height above the ground.

In the upper side of the shoe 5 is a transverse recess to accomodate the end of the cutter bar 25 so that the said bar will be held between and guided by the front wall of said recess and the front edge of the upper member of the upper tongue 4 at the end of the finger bar 3. Keepers or guards 26 are also secured upon the finger bar and the shoe respectively, so as to extend over the cutters and thereby protect them from an accumulation of grain upon the shoe which would tend to clog the action. The cutters will, of

course, be connected with such driving mechanism as may be employed so that they will reciprocate through the guard fingers.

The outer shoe 8 consists of a vertical web having a lower flange or reinforcing web 7 and an upper or reinforcing web 27 which follows the upper edge of the body of the shoe, as clearly shown. It will be readily noted that the outer shoe is substantially triangular in vertical outline so that its front end will readily take under the grass or grain near the surface of the ground and lift the same so that the grass or grain growing outside the path of the advancing cutter will be separated from that growing in said path, as will be readily understood. An opening 28 is formed through the body 8 of the outer shoe to receive the tongues 6 of the finger bar and also to accommodate the cutter bar and the blades attached thereto, the cutter bar 25 being guided between the front edge of the upper tongue 6 and the transverse shoulder 29 of the lower web 7, as will be readily understood. A groove 30 is also formed in the upper surface of the web 7 and of the inner shoe so as to accommodate balls or other bearing members which may be employed if desired, and to reduce the area of the contacting surfaces so as to minimize frictional wear. The webs 7 and 27 increase in width from their front ends to their rear ends, as shown clearly in Fig. 1, and the lower web is provided at its front extremity with a depending enlargement 31 having a notch 32 in its rear end to receive the front end of a supplemental shoe 33, as clearly shown in Fig. 3. This supplemental shoe, as well as the supplemental shoe 17, will preferably be constructed of a metal plate having the same outline as the under surface of the main shoe to which it is applied, and its rear end is curved upwardly, as shown at 34, in the same manner as the rear end of the supplemental shoe 17 is formed. At the outer edge of the supplemental shoe 33, near the rear end thereof, I erect a standard or bracket 35 carrying a bolt 36 passing through a longitudinal slot 37 in a bracket or post 38 rising from the outer edge of the web 7. By turning home the nut 39 on the inner end of the bolt 36 against the post or bracket 38, the shoe 33 may be secured in any desired position relative to the web 7 so that the outer shoe will be supported at any desired height above the ground.

A vertical pivot pin or bolt 40 is mounted in the webs 7 and 27 near the rear extremities of the same, and the divider board 41 is equipped at its front end with a sleeve 42 fitting around the said pivot pin to permit the divider board to be adjusted to any desired angle relative to the body of the outer shoe. This sleeve 42 may conveniently be formed by doubling on itself a metal plate 43 and securing the leaves or members of said plate to the opposite faces of the divider board, as clearly shown and as will be readily understood. A holding plate 44 is provided at the front end of the divider board 41 and is preferably formed integral with the sleeve 42. This holding plate 44 rests upon the rear end of the web 7 and is constructed with an arcuate slot 45 concentric with the pivot 40, through which a securing bolt 46 is passed into the web 7 so that the divider board may be secured at any angle in which it is set. The divider board 41 will, in practice, generally carry a rearwardly extending rod (not shown) to assist in dividing.

A divider rod 47 is employed, the said rod being curved so that it may project inwardly above the divider board 41, as shown by dotted lines in Fig. 1. The forward end of the divider rod 47 is secured firmly in a sleeve 48 formed on the upper edge of a substantially triangular base or foot plate 49 having a hollow toe or cap 50 at its front end, the said toe or cap fitting around the forward extremity of the outer shoe as clearly shown in Fig. 3. The plate 49 is provided with a slot 51 through which and the body of the outer shoe a bolt 52 may be passed to secure the foot plate and the divider rod in any desired set position. It will be readily noted that the under side of the toe or cap 50 is adapted to ride upon the ground and that this cap is substantially conical in form so that it will readily take under the grass or grain and divide the same as the machine advances over the field. The hollow formation of the cap permits it to rock freely upon the front end of the shoe and the bolt 52 passing through the slot 51 will secure the foot plate firmly against the shoe so that the divider rod 47 will stand at any desired height and may be adjusted according to the height of the grain to be cut. The foot plate may terminate as shown in the drawings or may extend rearwardly over the slot 28.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that I have provided mechanism by which the cutter will be firmly supported at any desired height and in which the separation of the standing grain from the grain to be cut and the deflection of the cut grain into the swath behind the cutter, will be effectually and readily accomplished. When the parts have been adjusted they will be securely held in the adjusted position and the operation of adjusting them may be very easily and rapidly accomplished.

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

1. In a cutting apparatus, the combination of a shoe having longitudinal webs at

its upper and lower edges on its outer side, a divider board pivotally mounted in and extending between said webs, and means for fixedly securing the said divider board in a set position relative to the shoe.

2. In a cutting apparatus, the combination with a shoe, of a divider board pivotally attached to the rear end of the shoe at the outer side of the same, a horizontally disposed holding plate connected with said board and provided with an arcuate slot concentric with the pivot of the board, and a securing bolt inserted through said slot into the shoe whereby to hold the board in a set position.

3. In a cutting apparatus, the combination of a shoe having a tapered front end, a conical cap fitting loosely over the tapered front end of the shoe, a divider rod extending rearwardly from the upper edge of said cap, and means for securing the divider rod in a set position vertically relative to the shoe.

4. In a cutting apparatus, the combination of a shoe having a tapered front end, a vertically disposed foot plate fitted against the side of the shoe adjacent said end, a cap at the front end of said plate fitting loosely over the front end of the shoe for rocking movement, a divider rod carried by the upper edge of said plate, and extending rearwardly and upwardly therefrom, and means for adjustably securing said plate to the shoe.

5. In a cutting apparatus, the combination of a shoe having a tapered front end, a conical cap fitting loosely around the front end of the shoe for rocking movement, a vertically disposed foot plate carrying said cap and extending rearwardly therefrom, said plate bearing against the side of the shoe and being provided with an approximately vertical slot, a fastening device inserted through the said slot into the shoe whereby to secure the foot plate in any position of vertical adjustment, and a divider rod secured at its front end along the upper edge of the foot plate and extending upwardly and rearwardly therefrom.

6. In a cutting apparatus, the combination of a shoe having longitudinal webs on its outer side at its upper and lower edges, a pivot pin secured in and extending between said webs, a divider board, a sleeve secured to the front end of the divider board and fitting the pin to support the board upon the pin for movement about the same, a holding plate extending horizontally from the sleeve and resting upon the lower web of the shoe, said plate being provided with an arcuate slot concentric with the pivot pin, and a fastening device inserted through said slot into the said lower web to secure the divider board in a set position relative to the shoe.

In testimony whereof I affix my signature.

FRED CRAWFORD. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."