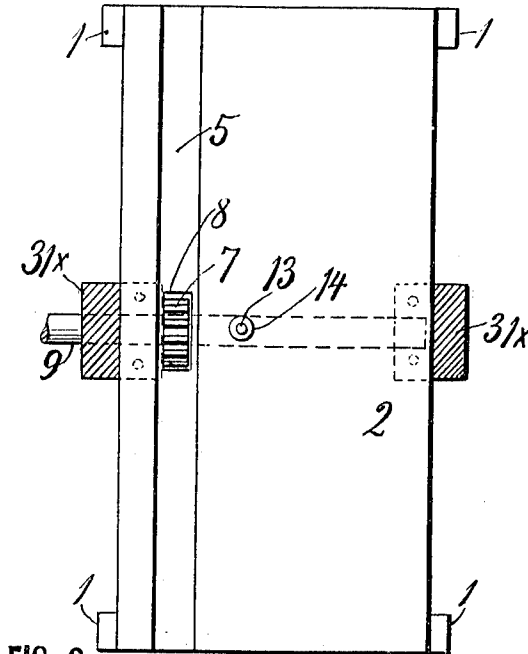


APPLICATION FILED AUG. 1, 1912.

2 SHEETS—SHEET 1.

A. E. Carlson.  
D. E. Carlson



Clarence C. Hoff,  
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C. E. HOFF & J. V. FIELDER.

PLOWSHARE SHARPENER.

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1,064,144.

Patented June 10, 1913.

2 SHEETS—SHEET 2.

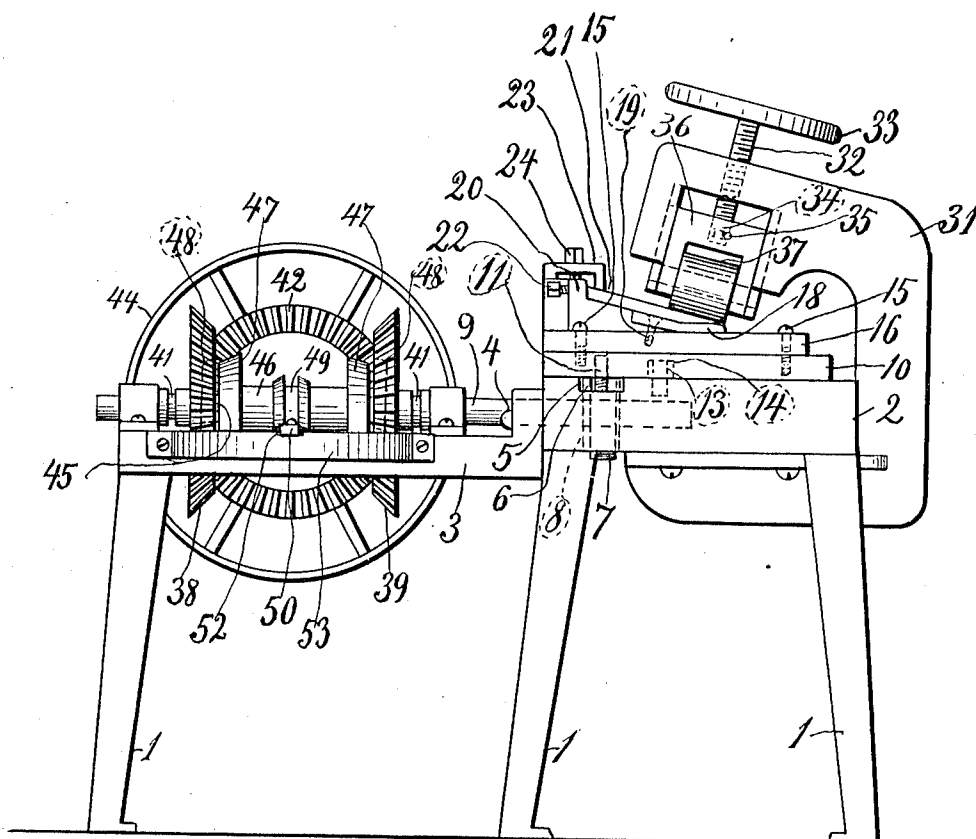


FIG. 5.

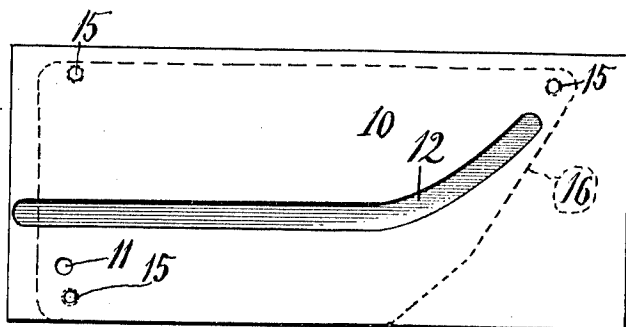


FIG. 4.

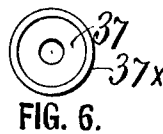


FIG. 6.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

CLARENCE E. HOFF AND JOHN V. FIELDER, OF ROCK LAKE, NORTH DAKOTA.

PLOWSHARE-SHARPENER.

1,064,144.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed August 1, 1912. Serial No. 712,708.

*To all whom it may concern:*

Be it known that we, CLARENCE E. HOFF and JOHN V. FIELDER, citizens of the United States, residing at Rock Lake, in the county of Towner and State of North Dakota, have invented a new and useful Plowshare-Sharpener, of which the following is a specification.

Our invention relates to devices for sharpening plow shares which have worn dull and blunt. Heretofore such sharpening has been done by heating and hammering or forging, but said process is very slow and also apt to leave the edge and even the whole share in a curved and uneven shape.

The object of our invention is to avoid said objections by placing the heated share on an anvil and let a roller work upon the upper side of the edge and thus thin out and sharpen the edge of the share between the roller and the anvil.

In the construction of our device or machine we provide a main frame, an interchangeable guided slidable plate upon the frame, an anvil removably secured upon the slidable plate, an adjustable steel roller close above the anvil, and means for sliding back and forth the sliding plate holding the anvil, so that the edge of the share which is secured to the anvil will reciprocate under the roller.

In the accompanying drawings,—Figure 1 is a top view of our plow share sharpening machine in a general way with a plow share secured on it ready to be sharpened. Fig. 2 is a top view of the bed plate portion of the main frame of the machine, nearly all other parts are broken away or omitted. Fig. 3 is the top of the bed plate shown in Fig. 2 with an operating rack placed in a groove of the plate and some antifriction rollers added as a modification. Fig. 4 is a bottom view of the slidable plate adapted to slide upon the bed plate and the anvil shown in dotted lines as bolted to the top of the sliding plate. Fig. 5 is a front side elevation of the machine shown in Fig. 1 with the top frame holding the working roller modified. Fig. 6 is an end view of the working roller by which the edge of the plow share is sharpened.

Referring to the drawings by reference numerals 1, 1 designate legs upon which is mounted a main frame composed of a bed

plate 2 and a skeletoned portion 3, which may be formed integral, or may be bolted together as at 4.

Slidable in a groove 5 of the bed plate 2 is a rack 6 (best shown in Fig. 3). Said rack is engaged by a gear pinion 7 which projects upward through a slot 8 in the bed plate and is fixed on a shaft 9, which shaft is journaled in the skeleton frame 3 and underneath the bed-plate 2, which it may extend across as in Figs. 1 and 2 or only partly across, as in Fig. 5.

Slidable upon the bed-plate is a guiding plate 10, which near one corner is detachably pivoted at 11 to one end of the rack 6. Said plate 10 has its underside provided with a groove 12 (see Fig. 4) adapted to straddle a stud 13 which is fixed in the bed plate and has an antifriction roller 14 rotatable on it. On the top of the plate 10 is secured by bolts 15 an anvil 16. Said anvil has an upwardly raised and laterally partly inclined and partly curved face 17 which in Fig. 5 is indicated as produced by a steel bar 18 secured to the anvil by screws 19 so as to line the face of the anvil with steel. The anvil is formed with a rib 20 against which the rear edge of the plow share 21 is placed and regulated by screws 22 in the rib while a clamp 23 and screw 24 hold the share tight down upon the anvil. The share is further held in place by having the usual land side portion 25, that is welded underneath the point of the share, dropped down into a groove 26 of the anvil and there clamped against the front side of the groove by screws 27 that are threaded through a rib 28 of the anvil.

29 is one of several packing strips which are of different size and shape so as to practically fill between the ends of the screws 27 and the land side portion of shares of different angles at said point. In this connection it may also be stated that the machine is provided with two or more of the plates 10, each plate having the groove 12 of such different curvature as will fairly correspond to the various curvature of the curve of different plow shares, hence said plate 10 is detachable for exchange with other similar plates having a differently curved groove 12.

Extending upwardly from the bed plate is a frame portion 31 which may be fixed to the bed plate only at one side of it, as in

Fig. 5, or may arch across it as frame 31\* in Fig. 1. In said frame is threaded a screw 32 having its upper end provided with a hand wheel 33 and its lower end with an annular groove 34 which receives a pin 35, by which the screw is retained in a block 36 which slides in the frame 31 and carries a roller 37 arranged to press the edge of the plow-share against the anvil and thereby sharpen it when the anvil is in motion. The latter motion is obtained from rotation of the pinion 7 and its shaft 9. Said shaft may be rotated alternately in opposite direction by any suitable mechanism, of which the following one is illustrated: On the shaft 9 rotate two miter gears 38, 39, they are held against sliding movement by fingers 40 engaging in annular grooves 41 in their hubs. Both gears are constantly in mesh with a miter gear 42 fixed on a shaft 43 having a fixed pulley 44 adapted to be driven by a belt. Between the gears 38, 39 is slidingly mounted on the shaft 9 and on a feather key 45 fixed therein, a double-headed coupling member 46 having two tapered friction heads or truncated cones 47, each of which is adapted to engage frictionally in a conic annular cavity 48 in the adjacent miter gear. Engaging in an annular groove 49 of the coupling member is a shifter lever 50, which is fulcrumed at 51 to the skeleton frame so loosely that when idle it will sink into a notch 52 of a segment 53 and thus prevent accidental starting of the machine.

In the operation of the machine, a plate 10 with the form of groove 12 required for the work having been put in place and likewise the required form of the wedge 29, the plow share is heated red hot, especially along its edge, the rest of it may preferably be cooled off some in water, is hastily secured in place on the anvil and with the miter gears all running the shifter lever 50 is swung so as to cause the clutch heads to engage alternately in and be turned in opposite directions by the gears long enough in each direction to let the entire edge of the plow share move along under the roller 37, which roller is at the same time fed gradually downward by the screw 32 and wheel 33; said operation is continued until the share is sharp, when it is removed.

In Fig. 6 is shown that the roller may be made of iron and have a peripheric lining 37\* of steel. And in Fig. 3 is shown how antifriction rollers 54 and 55 may be mounted in the bed plate to partly or entirely support the plate 10 from sliding on the bed-plate; said rollers having journals 56 rotating in semi-cylindrical bearings 57 in the bed-plate.

It will of course be understood that while the rack 6 is guided in groove 5, to maintain its meshing with the pinion or gear 7, the anvil and its supporting plate is guided by

the groove 12 and stud 13 so as to move all parts of the edge of the share in operative position under the roller.

What we claim is:

1. In a machine of the kind described, the combination with a main frame of an anvil mounted to slide in the frame, means for holding a plow share secured upon the anvil, an adjustable roller mounted in the frame and arranged to press upon the edge of the plow share, means for reciprocating the anvil and means for guiding the anvil according to the curvature of the edge of the plow share.

2. In a machine of the kind described, the combination with a main frame of an anvil mounted to slide in the frame, means for holding a plow share secured upon the anvil, an adjustable roller mounted in the frame and arranged to press upon the edge of the plow share, means for reciprocating the anvil, and means for guiding the anvil according to the curvature of the edge of the plow share, said guiding means for the anvil consisting of a stud fixed in the main frame, a plate detachably bolted to the underside of the anvil and having a curved groove in which the stud engages, said plate being pivotally connected with the means for reciprocation.

3. In a machine of the kind described the combination with a frame having a bed plate with a groove in it and an aperture at the middle of the groove, and a stud near the groove, of a rack slidable in the groove, a plate pivotally connected with the rack and resting upon the bed plate, an anvil removably secured upon the pivoted plate, and means for holding a plow share upon the anvil; said pivoted plate having in its under side a curved groove engaged by the stud, a driven shaft journaled in the frame, a gear wheel fixed on the shaft and projecting through the aperture so as to engage the rack.

4. In a machine of the kind described, a slidable anvil having a top surface adapted to support a plow share, means for reciprocating the anvil, a roller and means for pressing the roller down upon the edge portion of the plow share; said anvil having a groove for the landside of the share, clamping screws projecting into the groove and a removable strip to be pressed by the screws against the landside of the share; said anvil also having at its highest point a rib along the rear edge of the share, screws in said rib arranged to resist the rear edge of the share and clamping means adjacent thereto for clamping the share tightly down upon the anvil.

5. In a machine of the kind described, the combination with a frame, of supporting rollers mounted therein, a plate supported by the rollers, an anvil secured upon the

plate, means for guiding and means for reciprocating the plate, means for holding a plow share in place on the anvil, a roller mounted in a portion of the frame above the anvil, and means for pressing said roller downward upon the plow share near the front edge thereof.

In testimony whereof we affix our signatures, in presence of two witnesses.

CLARENCE E. HOFF.

JOHN V. FIELDER.

Witnesses:

THOS. C. WILDISH,

GEO. L. MATEER.

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

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