

J. R. BUTTWEILER.
DISK SHARPENER.
APPLICATION FILED JUNE 7, 1909.

950,016.

Patented Feb. 22, 1910.

Fig. 1.

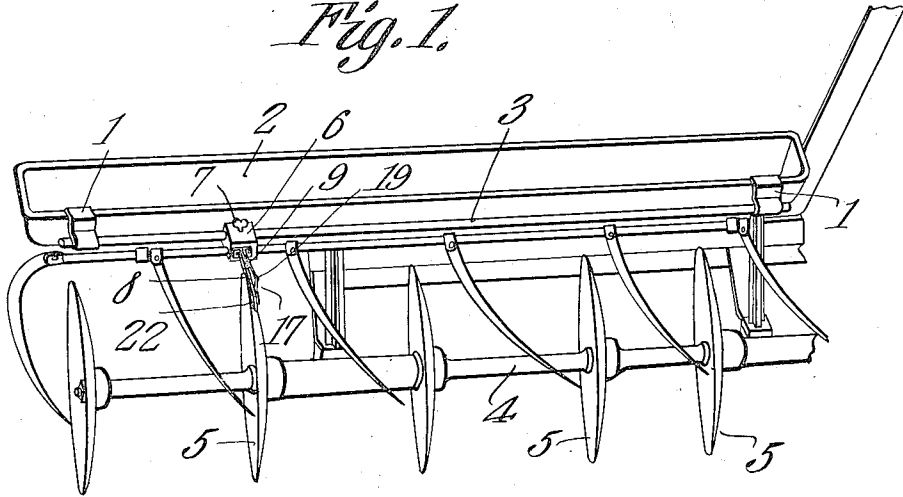


Fig. 2.

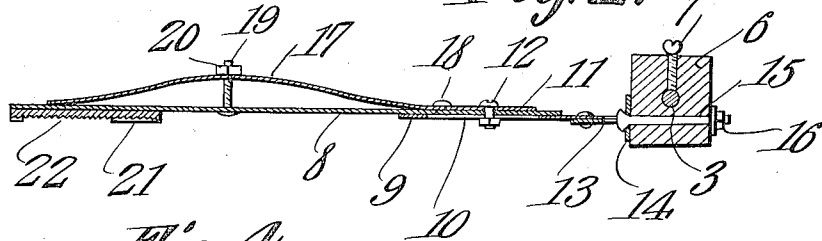


Fig. 4.

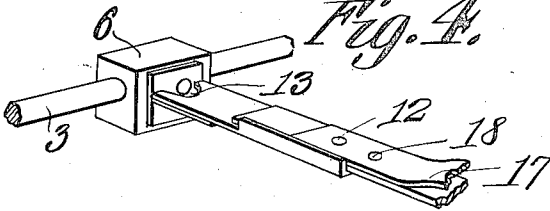
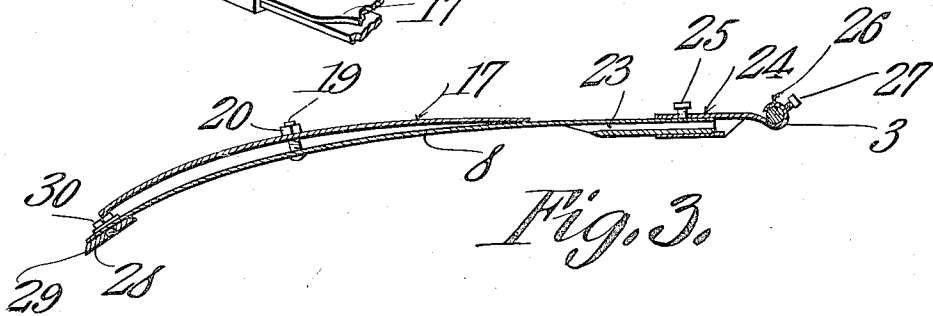


Fig. 3.



Witnesses

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JOHN RUDOLPH BUTTWEILER, OF FREEPORT, MINNESOTA.

DISK-SHARPENER.

950,016.

Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed June 7, 1909. Serial No. 500,542.

To all whom it may concern:

Be it known that I, JOHN RUDOLPH BUTTWEILER, a citizen of the United States, residing at Freeport, in the county of Stearns and State of Minnesota, have invented a new and useful Disk-Sharpener, of which the following is a specification.

This invention has relation to disk sharpeners especially adapted to be used on disk harrows during the time that they are in operation, and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

With the above object in view the sharpener comprises means for attachment to the frame of the harrow and a resilient arm adjustably mounted upon the said attaching means and carrying an element for engagement with the periphery of one of the disks of the harrow. The arm is so mounted that it may be easily and quickly adjusted to bring the sharpening element in contact with the periphery of any disk in the gang of disks, and means is provided for turning the arm upon an axis at a right angle to its line of movement upon the supporting means whereby the sharpening or abrading element or member may be positioned at a desired angle against the periphery of the disk.

In the accompanying drawing:—Figure 1 is a perspective view of a disk harrow, showing the sharpener applied thereto. Fig. 2 is an edge elevation of one form of the sharpener. Fig. 3 is an edge elevation of a modified form of the disk-sharpener. Fig. 4 is a detailed perspective view of assembled parts of the sharpener.

The sharpener includes clamps 1, which, as shown in Fig. 1, are applied to a weight box 2, which is usually present in harrows of the character mentioned. However, the said clamps may be applied to other parts of the frame-work of the harrow structure. A rod 3, is secured in the clamp members 1 and extends parallel with the shaft 4, which carries the gang of disks 5.

In the form of the resilient arm for supporting the abrading element or member as shown in Figs. 1 and 2 of the drawing, the same consists of a block 6, which is adjustably mounted upon the rod 3 and which is provided with a set screw 7, adapted to be tightened against the rod 3 for the purpose of holding the block 6 in an adjusted position thereon.

Prior to being secured in an adjusted position upon the rod 3 the block 6 may be turned upon the said rod, so that the arm carried by the block may be pitched at a desired angle with relation to the peripheries of the disk 5. The arm 8 is preferably formed from flexible sheet metal, and is mounted at its forward end upon a bracket 9, which in turn is provided with an elongated slot 10 and upstanding side flanges 11. The forward portion of the arm 8 fits between the said flanges and a securing bolt 12 passes transversely through the forward portion of the arm 8 and through the slot 10 in the bracket 9. By this means of attachment it will be seen that the arm 8 may be adjusted longitudinally with relation to the bracket 9, and when in a desired position with relation thereto, may be secured by tightening the nut carried by the bolt 12. At its forward end the bracket 9 is provided with a member 13, which, in turn, is provided with a perforated flange 14; a securing bolt 15 passes through the perforation of the flange 14 and also through the lower portion of the block 6 and lies at a right angle to the long dimension of the rod 3. A nut 16 is screw-threaded upon the forward end of the bolt 15, and when the nut is loosened the member 13 may be turned upon the bolt 15 as an axis, and, when properly positioned, may be secured with relation thereto by retightening the nut 16. A reinforcing spring 17 is secured at its forward end to the forward portion of the arm 8 by means of a rivet 18 or its equivalent, and at its other end bears upon the rear end portion of the said arm 8. The bolt 12 heretofore described also passes through the spring 17. The spring 17 is of bowed configuration in edge elevation and its intermediate portion is normally spaced from the intermediate portion of the arm 8. A traction bolt 19 passes transversely through the intermediate portion of the arm 8 and the reinforcing spring 17, and is provided at one end with a threaded nut 20, which bears against the outer side of one of the said opposed members.

It will be seen that when the nut 20 is screwed upon the bolt 19 and moved toward the head thereof, the spring 17 will be compressed at its intermediate portion toward the intermediate portion of the arm 8 and that the said spring at its ends will have greater tension upon the end portions of the

arm 8, thus increasing or diminishing the resiliency thereof, as desired. At its rear end portion the arm 8 is provided with a number of downwardly and inwardly turned
 5 flanges 21, which carry between them an abrading member 22, which may be a section of file, a piece of emery, or their equivalent. By this arrangement it will be seen that the abrading member may be positioned
 10 against the inner or outer surface of the edge portion of the disk, and that the arm may be pitched at any desired angle with relation to the axis of rotation of the disk, and the resiliency of the arm may be increased or diminished to cause the abrading
 15 member to bear upon the periphery of the disk at a desired degree of pressure.

In the form of arm as illustrated in Fig. 3, the parts 17, 19 and 20 approximately
 20 correspond with those parts of similar designating characters in the other figures of the drawings. In this form however the forward end of the arm 8 is formed into a round plug 23, which is inserted in a sleeve
 25 24 and held in an adjusted position therein by means of a set screw 25. At its forward end the sleeve 24 merges into a curled portion 26, which receives the rod 3, and which is provided with a set screw 27, adapted to
 30 be used to secure the said curled portion 26 in a desired position along the rod 3. In this form of the invention the abrading member is in the form of a bit 28, having beveled or sharpened edges 29. A bolt 30
 35 passes transversely through the rear portion of the arm 18 and is screw-threaded into the bit 28. Thus, by loosening the bolt 30 the bit 28 may be turned upon the said bolt as an axis to bring any one of its sharpened
 40 edges 29 in contact with the surface at the edge of the disk to be sharpened. When the bit has been so positioned it may be secured with relation to the arm 8 by retightening

the bolt 30. In this form of the invention it will also be seen that the arm 8 may be
 45 moved longitudinally with relation to the sleeve 24 and may also be turned therein, and when properly positioned, may be secured by means of the set screw 25. By tightening or loosening the nut 20 on the
 50 bolt 19, the resiliency of the arm 8 may be increased or diminished as desired. Thus, in both forms of the invention it will be seen that the arm may be adjusted longitudinally and secured; that it may be adjusted later-
 55 ally along the supporting rod 3 and secured; that it may be pitched at a desired angle with relation to the long dimension of the said supporting rod 3; that it may be turned upon its long dimension as an axis and secured, and that its resiliency may be adjusted to suit occasion. Thus it is possible to position the parts so that the abrading member
 60 is caused to operate against the inner or outer surface of the edge portion of the disk, 65 and may be held against such edge portion under pressure sufficient to sharpen the same without creating undue friction or wear.

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

A disk-sharpener attachment comprising a support, an arm adjustably mounted thereon, means for securing the arm in an adjusted position, said arm being resilient, a reinforcing spring bearing upon the arm, means for regulating the stress of the reinforcing spring upon the arm, and an abrading member carried by the arm.

In testimony that I claim the foregoing as
 80 my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN RUDOLPH BUTTWEILER.

Witnesses:

H. B. CRUHLENKATT,
 NICK THIELEN.