No. 749,766. PATENTED JAN. 19, 1904.

F. E. WILKISON.

DISK GRINDING DEVICE.

APPLICATION FILED MAY 27, 1903.

NO MODEL.

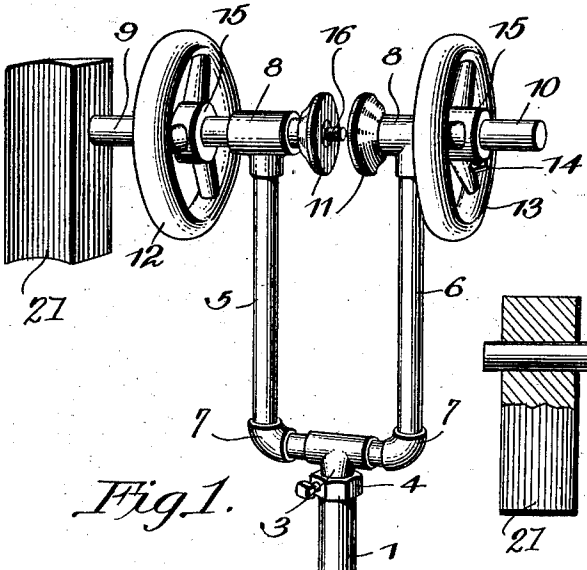
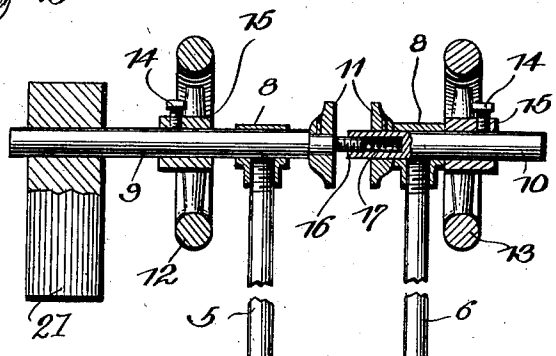


Fig. 1.



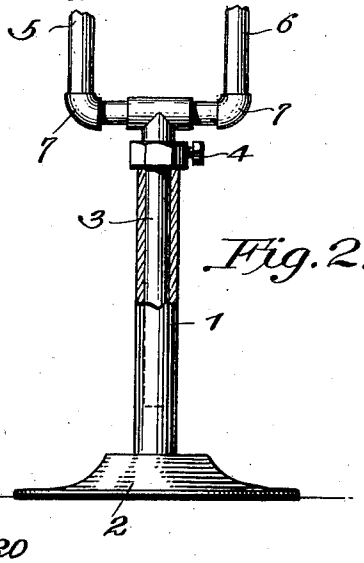


Fig. 2.

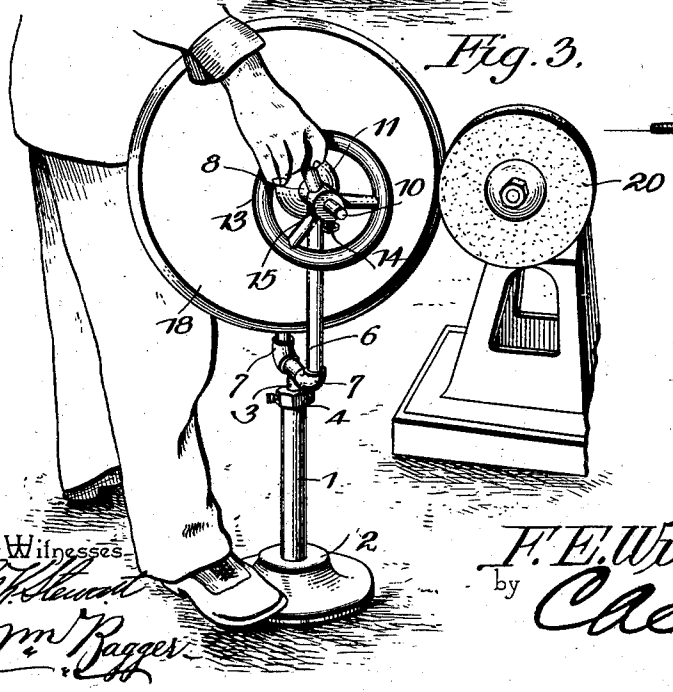


Fig. 3.

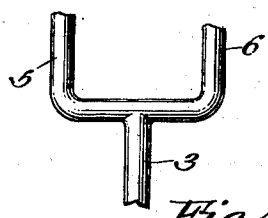


Fig. 4.

Witnesses:
E. F. Stewart
Wm. Bagger

Inventor.
F. E. Wilkison.
by C. A. Snow & Co.
Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,766. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

FRED E. WILKISON, OF HORTON, KANSAS.

DISK-GRINDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 749,766, dated January 19, 1904.

Application filed May 27, 1903. Serial No. 158,995. (No model.)

To all whom it may concern:

Be it known that I, FRED E. WILKISON, a citizen of the United States, residing at Horton, in the county of Brown and State of Kansas, have invented a new and useful Disk-Grinding Device, of which the following is a specification.

This invention relates to devices for grinding disks of that class which are commonly used in farming implements; and it has for its object to provide a device by means of which the disk that is to be operated upon may be held and manipulated with relation to the grindstone in such a manner as to insure the most perfect results.

With these ends in view my invention consists of a disk-holding device adapted to be supported at various elevations, so that it may be conveniently used in connection with a grindstone or emery-wheel hung at any ordinary elevation, said holding device being adapted to hold the disk revolubly, so that it may be rotated or fed by contact with the rotary grinding-surface, said holding device being, furthermore, provided with handles whereby it may be manipulated so as to hold the edge of the disk that is to be operated upon in contact with the rotary grinding element with any desired degree of pressure and at any desired angle, so that the disk may be ground with a bevel of any desired angle.

My invention further consists in the improved construction, arrangement, and combination of parts which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side elevation of a device constructed in accordance with the principles of my invention. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a perspective view showing the device with a disk mounted in operative position and showing also an emery-wheel contacting with the edge of said disk in operative position. Fig. 4 is a detail view illustrating a modification.

Corresponding parts in the several figures are indicated by similar numerals of reference.

1 designates a tubular standard supported vertically in a foot or socket piece 2. A rod 3, vertically slidable in the tubular standard 1, is provided with an adjustable set collar 4, whereby it may be supported upon the upper end of the said tubular standard at any desired elevation. The upper end of the rod 3 carries a fork of which the members 5 and 6 are connected at their lower ends to said rod in any suitable manner, as by means of couplings 7. The latter, however, may be omitted, and the fork comprising the members 5 and 6 may be bent from a single piece of iron, as shown in the modification illustrated in Fig. 4 of the drawings. The upper ends of the fork members 5 and 6 are provided with horizontally-disposed boxes 8, which may be in the nature of ordinary T-couplings connected therewith. Said boxes afford bearings for a pair of short shafts 9 and 10, each of which is provided with a clamping-collar 11, which said clamping-collars are disposed between the fork members 5 and 6. Outside of said fork members the respective shafts 9 and 10 are provided with hand-wheels 12 and 13, secured adjustably on said shaft by means of set-screws 14, extending through the hubs or collars 15 of the hand-wheels, as shown.

The clamping-collar 11 upon the shaft 10 may be disposed contiguous to the inner end of the boxing 8, and the hand-wheel 13 may be disposed contiguous to the opposite end of said boxing, thus preventing said shaft from sliding longitudinally in its bearings. The shaft 9, on the other hand, has a slidable movement in the direction of its length caused by the hand-wheel 12 being set at a distance from the boxing 8. The inner end of one of the shafts is reduced and exteriorly threaded, as shown at 16, to engage an internally-threaded recess 17 in the opposing ends of the other shaft. In the drawings the shaft 9 has thus been shown as reduced and externally threaded, while the shaft 10 has an internally-threaded recess 17. It will be observed that the shaft 10 having said recess is extended beyond the inner side of the clamping-collar 11 upon said shaft, while the reduced threaded end 16 of the opposite shaft is likewise extended beyond the inner side of the clamping-collar 11 upon said shaft.

In operation the disk which is to be oper-

ated upon, and which in the drawings is designated 18, is inserted between the ends of the shafts 9 and 10, and the central aperture of said disk is caused to engage the projecting end of the shaft having the internally-threaded recess. The opposite shaft 9, which is slidable in its boxing 8, is now moved laterally until the reduced threaded end 16 engages the recess 17, when by rotating said shaft 9 by means of the hand-wheel 12 the shaft-sections will be connected by the said male and female threads. The disk is thus clamped firmly between the collars 11, so that said disk may revolve with the shafts 9 and 10, which, as stated, are mounted to revolve loosely in their respective bearings, as well as with the guide-wheels 12 and 13, which are mounted firmly upon said shafts. When the disk has been thus clamped, the device is in condition for operation.

To operate the invention, after mounting the disk between the clamping-collars upon the shafts 9 and 10 the device is placed in position in front of the emery-wheel or grinding element, which in Fig. 3 of the drawings has been designated 20. The forked element carrying the disk may be adjusted vertically by means of the set collar 4 until it occupies the desired position horizontally with relation to the grinding member. The operator now may steady the device by placing one foot upon the base member or foot-piece 2, at the same time grasping the wheels 12 and 13 with his hands. He may thus tilt the edge of the disk into contact with the base of the grinding element and hold and steady the same securely while it is being operated upon, the said disk being held at any desired angle, so that any desired bevel may be produced. It is obvious that, according to the pressure with which the disk is held against the grinding element, the speed of the rotation of said disk may be graduated, thus enabling any unskilled operator to avoid a degree of friction between the disk and the grinding element, whereby the former might become overheated and the temper thereof injured. The pressure of the disk against the grinding element and the consequent speed of rotation will of course be regulated by the operator, who will permit the hand-wheels or guide-wheels 12 and 13 to feed through his hands, the speed of rotation being thus governed by the pressure exercised by his hands upon the said guide-wheels.

In order to assist in the operation and manipulation of the device, the projecting end of either one of the shafts 9 or 10 is to be provided with a shoe 21, revoluble thereon and having a concaved surface to accommodate the leg of the operator, who by pressing upon the said shoe will thus be enabled to force the disk with a heavy pressure into contact with the grinding element, as will be readily understood. This shoe is simply suspended freely from the shaft upon which it is mounted and will be found a valuable accessory to the device.

It is obvious that by holding the edge of the disk against the grinding element with the proper degree of pressure the said disk may be rotated at an even and regular speed, whereby a smooth, even, and sharp cutting edge may be formed thereon very quickly and in a much more perfect manner than it would be possible where some holding device of the character herein described is not conveniently at hand.

The operation and advantages of my invention having now been described I desire it to be understood that I do not limit myself to the precise structural details herein set forth, but reserve the right to any changes, alterations, and modifiations which may be resorted to within the scope of my invention and without departing from the spirit or sacrificing the utility of the same.

Having thus described my invention, I claim—

1. In a device of the class described, a disk-holding device comprising a pair of shafts disposed in alinement, one of said shafts being longitudinally movable, bearings for said shafts, and means for connecting the opposing ends of said shafts.

2. In a device of the class described, a disk-holding device comprising bearings disposed in alinement with each other, a pair of shafts journaled independently in said bearings, said shafts being provided with disk-clamping collars and one of said shafts being longitudinally movable in its bearing, the opposing ends of said shafts being provided with means whereby they may be temporarily connected.

3. In a device of the class described, a holding device comprising a fork, boxings mounted at the upper ends of the members of said fork in alinement with each other, shafts journaled in said boxings, said shafts being provided at their opposing ends respectively with a reduced screw-threaded portion and with an internally-threaded recess, and disk-clamping collars mounted upon said shafts.

4. In a device of the class described, a vertically-adjustable fork, boxes connected with the prongs of said fork, shafts journaled in said boxes, collars upon said shafts, a hand-wheel so secured upon one of the shafts as to prevent the longitudinal movement thereof, a hand-wheel so secured upon the other shaft as to admit of its movement longitudinally in its bearing, and means for temporarily connecting the ends of the shafts projecting inward beyond the opposing faces of the collars.

5. In a device of the class described, a supporting member having a foot-piece engaged by the foot of the operator and a disk-holding member vertically adjustable with relation to said supporting member, said disk-holding member including means for rotatably sup-

porting the disk to be operated upon, and handle means whereby the device may be manipulated by the operator.

6. In a device of the class described, means for rotatably supporting a disk to be operated upon, said supporting means being revoluble in bearings and temporarily connected by male and female screw-threads and said supporting means being further provided with holding means whereby they may be restrained from rotating during the operation of the device.

7. In a device of the class described, shafts for rotatably supporting a disk, said shafts being provided with collars and with extensions at the opposing sides of said collars capable of screw-threaded connection with each other, one of said shafts being longitudinally slidable in its bearings and each of said shafts being provided with hand-wheels whereby the device may be controlled and the shafts turned to clamp the disk interposed between the collars with any desired degree of pressure.

8. In a device of the class described, a disk-holding device comprising independently-supported shafts having detachably-connected ends provided with collars, in combination with a shoe mounted loosely upon one of said shafts and having a concavity to engage the leg of the operator, and hand-wheels upon said shafts.

9. A disk-holding device comprising disk-clamping means having screw-threaded engagement with each other, and means for holding and guiding the device, said means serving also to regulate the friction of the clamping means against the disk.

10. In a device of the class described, disk-clamping means having screw-threaded engagement with each other through a central aperture of the disk, and hand-wheels mounted upon said screw-threaded clamping members.

11. In a device of the class described, clamping means for frictionally engaging opposite sides of the disk to be operated upon, and holding and guiding means whereby said clamping means may be actuated and adjusted during the operation of the device.

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

FRED E. WILKISON.

Witnesses:

CHAS. R. JOHNSON,

J. F. WHEELER.