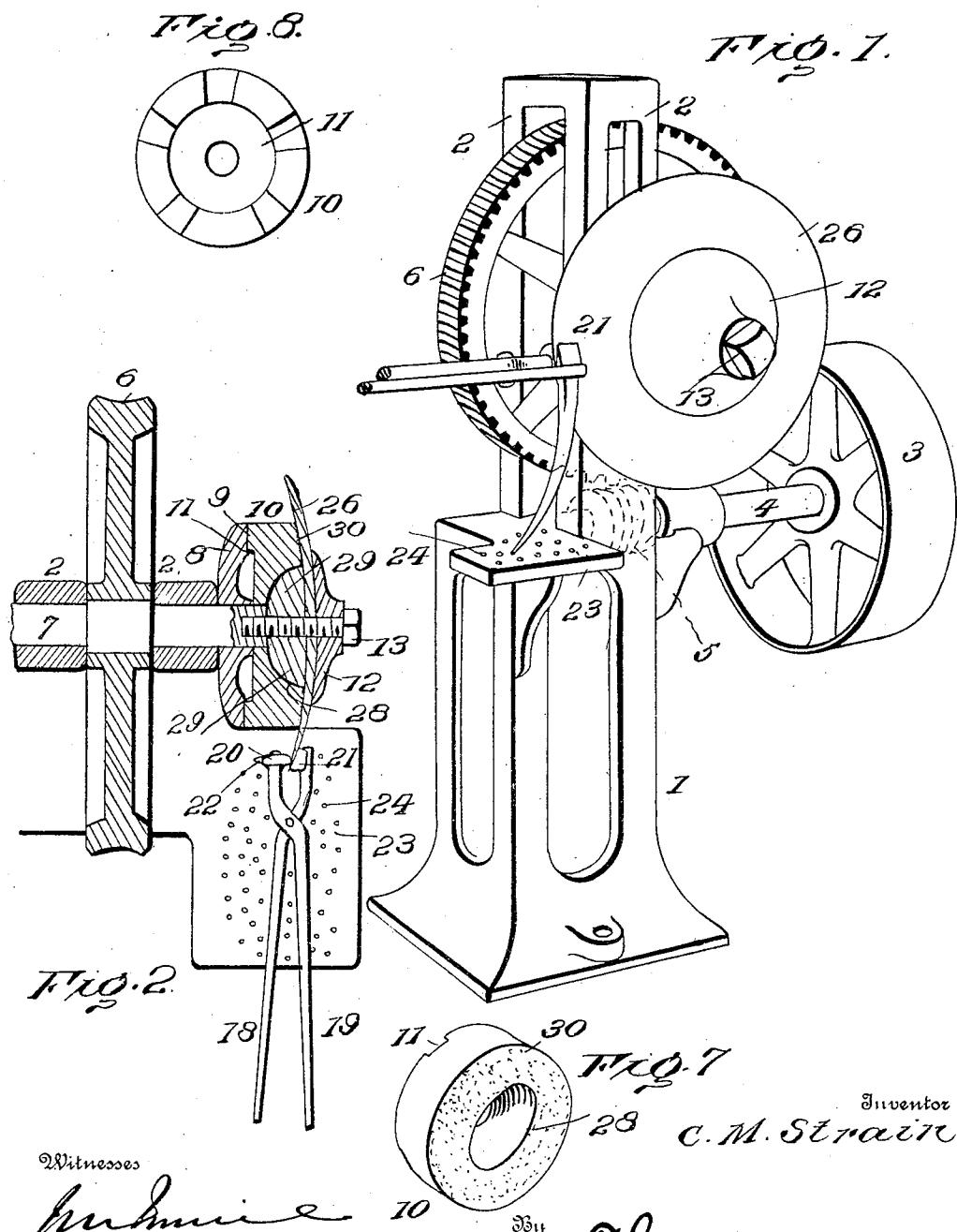


No. 809,334.

PATENTED JAN. 9, 1906.

C. M. STRAIN.  
DISK SHARPENER.  
APPLICATION FILED APR. 17, 1905.

2 SHEETS—SHEET 1.



Witnesses

Johnnie 10  
W.C. Hudson

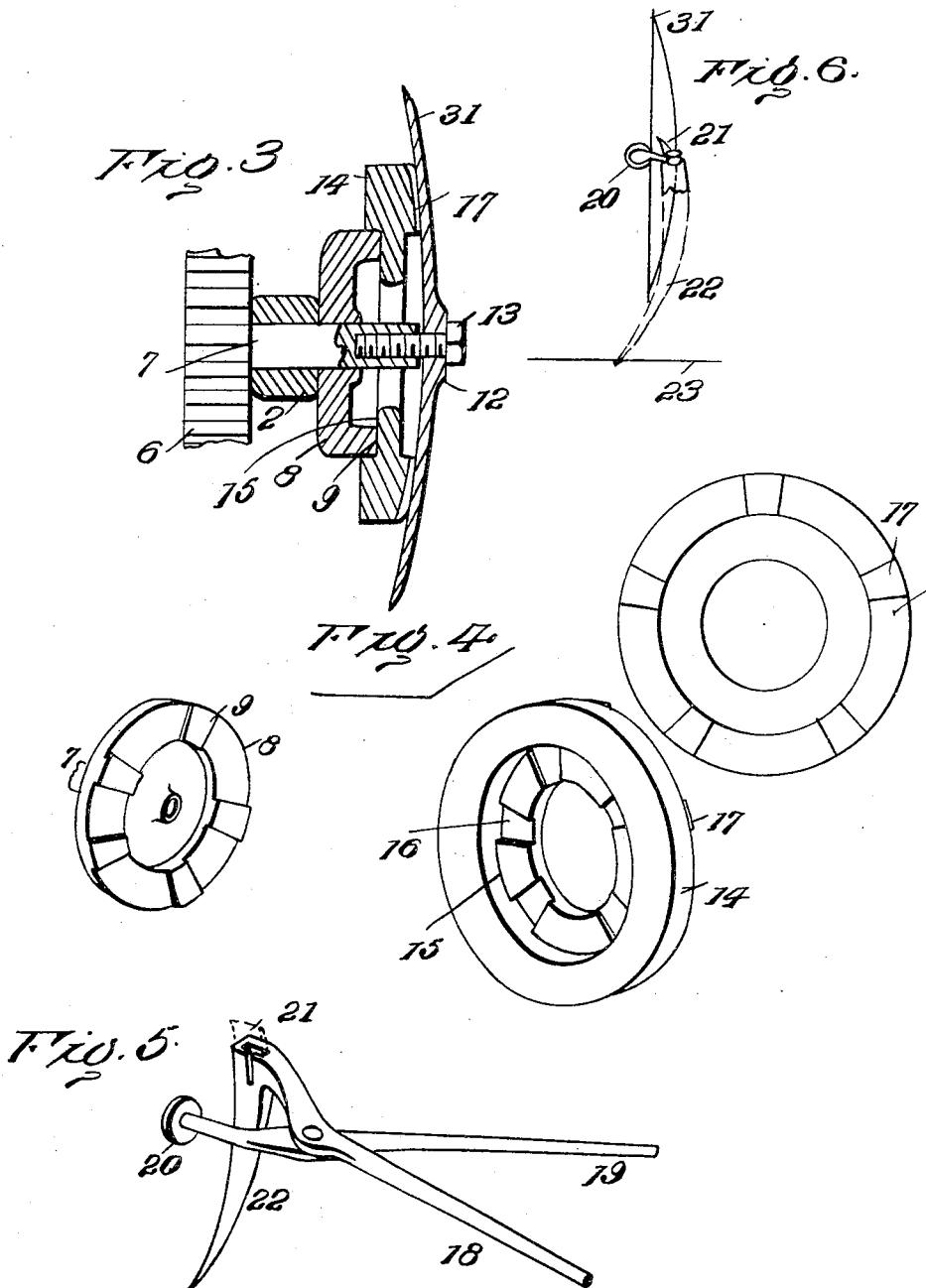
By  
R. A. Geary, <sup>Inventor</sup> <sub>Attorneys</sub>

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2 SHEETS—SHEET 2.



Inventor

C. M. Strain

Witnesses:

Johnnie  
W. C. Morrison

By

Phil A. Tracy, Attorney

# UNITED STATES PATENT OFFICE.

CHARLES M. STRAIN, OF CRAWFORDSVILLE, IOWA, ASSIGNOR OF ONE-THIRD TO DAVIDSON BROS., OF CRAWFORDSVILLE, IOWA.

## DISK-SHARPENER.

No. 809,834.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed April 17, 1905. Serial No. 256,098.

*To all whom it may concern:*

Be it known that I, CHARLES M. STRAIN, a citizen of the United States, residing at Crawfordsville, in the county of Washington and 5 State of Iowa, have invented certain new and useful Improvements in Disk-Sharpener, of which the following is a specification.

This invention appertains to machines of the type designed most especially for sharpening disks, such as rotary colters and harrow and plow cutters.

An essential feature of the invention is the provision of means whereby different-sized disks may be firmly and securely clamped, 15 interchangeable clamps being provided for the purpose.

A further purpose of the invention is to devise a tool-holder of novel formation which may be instantly shifted to adapt the cutter 20 to the disk and which may be instantly moved so as to clear the disk when it may be required to inspect the work or after the sharpening process has been completed.

For a full description of the invention and 25 the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment of the 35 invention is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a disk-sharpener constructed in accordance with and embodying the essential features of the 40 invention. Fig. 2 is a horizontal section of the upper portion of the machine, parts being omitted. Fig. 3 is a view similar to Fig. 2 of the machine, showing a plow-disk in position to be sharpened. Fig. 4 is a perspective view of the series of clamp members or work-holding devices, the parts being arranged in a group. Fig. 5 is a detail perspective view of the tool-holder. Fig. 6 is an edge view of a disk, showing the relation of 45 the tool and its supporting-standard when applied thereto. Fig. 7 is a detail perspective view of the face side of the clamp member or attachment used in connection with a rolling colter or like disk having a hub at its con- 50 cave side. Fig. 8 is a perspective view of the part shown in Fig. 7 as seen from the rear. Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters. 55

The framework for supporting the operating parts of the machine may be of any desired construction and design and, as illustrated, appears as a stand 1, provided at one side with parallel uprights 2, which are connected at their upper ends. The stand 1 is of pedestal form and is provided with bearings in which is journaled the power-driven shaft 4, provided with band-pulley 3 and worm-thread 5, in mesh with corresponding cogs 6 60 of a worm-wheel fast upon the shaft 7, which is provided with the clamp devices for holding the work during the sharpening operation. The shafts 4 and 7 are disposed relatively at a right angle to each other, the arrangement being such as to avoid interference of one with the other. 65

The work-receiving end of the shaft 7 is provided with a clamp member 8, fast thereto and consisting of a disk provided at intervals with projections 9 to make positive connection either with the disk to be sharpened or with a coöperating clamp member 10. The clamp member 10 is provided upon the side adapted to lie against the clamp member 8 with depressions 11, corresponding in number and position with the projections 9, so as to insure positive interlocking connection between the two clamp members when placed together. The outer side of the clamp member 10 is provided with an abrading material, such as sand, emery, or the like. In preparing the outer face of the member 10 it is first coated with an adhesive material, such as glue or paste, after which the abrading material is dusted thereon. The disk 26 to be sharpened, if a rolling colter or of such a nature as to have a hub 29 on its hollow or concave side, is confined between the member 10 and a washer 12, the latter being forced home 85 by means of a tap-bolt 13, threaded into the end of the shaft 7, provided with the clamp member 8. When the disk is smooth upon its concave face, the member 10 is dispensed with, said disk being slipped upon the shaft 7 and clamped between the parts 8 and 12. The member 10 is provided in its outer face 90 with a central depression 28 for reception of

the hub 29. The roughened face 30 prevents slipping of the disk 26 when sharpening.

For disk stirring-plows, as 31, or like large-sized rotary cutters, a clamp member 14 is provided. This clamp member 14 is of larger diameter than the clamp member 8, and one side thereof is provided with a central depression 15 of a size to snugly receive the disk 8, and the other side is provided near its 10 periphery with projections 17 for substantially the same purpose as the projections 9 of disk 8—namely, to prevent slipping of the work when the machine is in operation. This member 14 supports disk 31 near its 15 outer edge.

The tool-holder comprises members 18 and 19, crossed near one end and pivoted at their 20 point of crossing, one member carrying an antifriction-roller 20 and the other member provided with a cutter 21, by means of which 25 the sharpening is effected. A standard 22 is pendent from the outer end of one of the pivoted members and is pointed at its lower end to form, in effect, a pivot-support to admit of 30 adapting the cutter to the disk being sharpened. The standard 22 is curved throughout its length, and this is of vital consequence, as it prevents the cutter from wedging against 35 the work and admits of its ready control and easy detachment from the work when required for any purpose. Moreover, the curvature of the standard 22 enables its foot to obtain a purchase upon the support 23 at a 40 point to one side of a perpendicular line passed through the disk 31, as shown most clearly in Fig. 6. The disk 31 occupies a position between perpendicular planes passed through the cutter 21 and the foot of the standard 22. Hence the tendency of the cutter 21 45 is to fall away from the work instead of being forced toward it, as would be the case if the foot of the standard were on the same side of the disk as the cutter.

A plate 23 forms the top of the stand and 50 is provided in its upper side with a plurality of depressions 24, designed to receive the lower extremity of the standard 22, so as to prevent slipping thereof after the tool-holder has been adjusted to the required position. The plate 23 is preferably an integral part of 55 the stand. This is not essential, as it may be separate from and applied to the stand in any manner and may be of any form.

In the practical operation of the machine 60 the disk 26 to be sharpened is held either between the clamp member 8 and washer 12 or

between the member 10 and the washer 12, as shown in Fig. 2, or between the clamp member 14 or washer 12, as shown in Fig. 3. In either instance the washer 12 is clamped 60 against the outer side of the disk by means of the tap-bolt 13. The cutter is adapted to the disk by inserting the lower end of the standard 22 in one of the depressions 24, the antifriction-roller 20 being arranged upon 65 one side of the disk and the cutting-tool 21 upon the opposite side. By proper manipulation of the members 18 and 19 the cutter 21 may be pressed against the disk with any degree of force and may be moved to effect 70 proper sharpening as may be required.

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

1. In a disk-sharpener, the combination of a power-driven shaft provided with a clamp member having its outer face provided with a centrally-disposed recess and with a circular series of spaced projections, a coöperating clamp member loose upon said shaft and having recesses in its inner face to receive the 80 projections of the first-mentioned clamp member and provided in its outer face with a depression to receive the hub of the disk to be sharpened, and means acting jointly with the said clamp members for holding them 85 and the work securely.

2. A holder for disk-sharpener provided with a supporting-standard curved in its length to admit of the disk to be sharpened occupying a position between parallel planes 90 passed through respectively, the edge of the tool and the foot of the standard, whereby the normal tendency of the tool is to fall away from the disk.

3. A tool-holder for disk-sharpener comprising members pivoted between their ends, one of said members having a pressure-roller and the other provided with a tool and with an integral standard curved and tapered throughout its length to a point, the parts being arranged to admit of the disk to be sharpened occupying a position between parallel planes passed through respectively the edge of the tool and the foot of the standard, whereby the normal tendency of the tool is 105 to fall away from the disk.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. STRAIN. [L. S.]

Witnesses:

W. S. SEWELL,  
GEO. R. YEAGER.