C. M. STRAIN.

DISK SHARPENING MACHINE.

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1,352,324.

Patented Sept. 7, 1920.

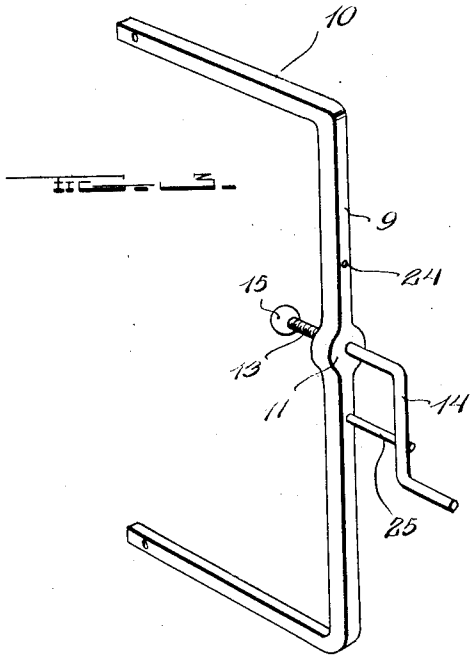


Fig. 3.

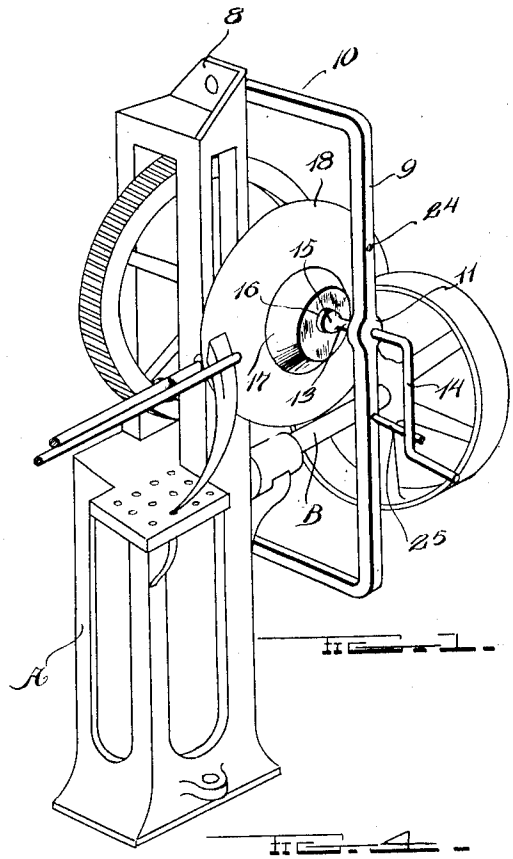


Fig. 1.

Fig. 4.

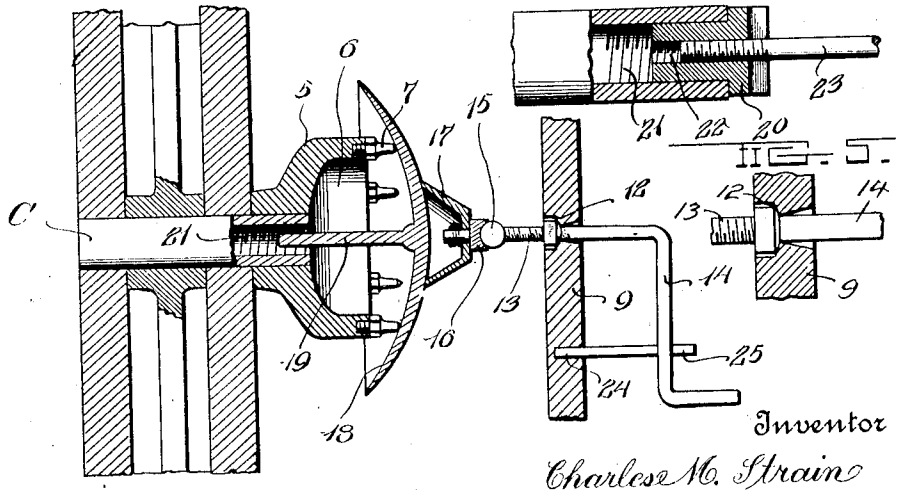


Fig. 5.

Fig. 2.

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DISK-SHARPENING MACHINE.

1,352,324. Specification of Letters Patent. Patented Sept. 7, 1920.

Application filed January 15, 1920. Serial No. 351,709.

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 State of Iowa, have invented certain new and useful Improvements in Disk-Sharpening Machines, of which the following is a specification.

The invention relates to a disk sharpening machine and has reference to a work holding attachment therefor, and more particularly to improvements in that class of disk sharpening machines forming the subject matter of Letters Patent No. 809,334, issued to me on or about the 9th day of January, 1906.

In disk sharpening machines of the type shown and described in Letters Patent No. 809,334 it is necessary to provide means, whereby different sized disks may be firmly and securely clamped and also variable styles of disks, such as rotary colters and harrow and plow cutters securely fastened in the machine for the sharpening thereof.

The primary object of the invention is the provision of a machine of this character, wherein the different types of work, such as disks are held in place in the machine to be acted upon by the cutter tool carried in a tool holder for the sharpening of said disk, the improvements being designed to eliminate the present face plate or work holder and also other attachments to hold a plow disk, roller colters and adjunct parts, as the improvements will permit the sharpening of any kind of disk or colter on either side thereof or both sides when the occasion requires.

Another object of the invention is the provision of a machine of this character, wherein the disk can be sharpened either with the axle thereon or removed therefrom to be securely and firmly held for the sharpening of the disk, the disk being supported from both sides and thereby eliminates vibration or chatter during the sharpening operation, while the clamping means for the disk will firmly grip the same should grease be present thereon and thereby preventing the slipping of the disk during the sharpening operation.

A further object of the invention is the provision of a machine of this character, wherein in its construction generally improves that type of disk sharpening machines forming the subject matter of Letters Patent No. 809,334 hereinbefore identified.

A still further object of the invention is the provision of a machine of this character, which is extremely simple in construction, thoroughly reliable and efficient in its purpose, strong, durable and inexpensive to manufacture.

With these and other objects in view the invention consists in the features of construction, combination and arrangement of parts which will be hereinafter fully described, illustrated in the accompanying drawing and pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a perspective view of the disk sharpening machine showing the improvements constructed in accordance with the invention.

Fig. 2 is a fragmentary vertical sectional elevation through the machine.

Fig. 3 is a perspective view of the bracket or yoke frame removed from the machine.

Fig. 4 is a fragmentary elevation partly in section showing in detail the bushing engaged with the hollow shaft of the machine for receiving a stud bolt.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail A designates generally the frame for supporting the operating parts of the machine, B, the power driven shaft and C the other shaft which will be hereinafter fully described. The operating parts of the machine are disclosed and clearly described in detail in Letters Patent No. 809,334 hereinbefore referred to so a detail description herein has been omitted for the sake of brevity and is unnecessary for a clear understanding of the mounting and the operation of the improvements in the machine as will be hereinafter fully described.

The shaft C is of hollow or tubular formation and has fixed thereto or integrally formed on one end thereof a substantially cup shape or bowl like member 5 constituting a face plate which has detachably fitted therein concentric to the hollow center 6 spaced steel calks 7 for biting into a disk to be sharpened.

Formed on the head of the work frame is a flange 8 and detachably secured to this flange and to the base of the working frame of the disk cutting machine is a yoke or bracket 9 having the laterally bent ends 10 through the extremities of which are engaged suitable fasteners for connecting the said yoke or bracket 9 to the work frame of the machine as is clearly shown in Fig. 1 of the drawing. This bracket 9 extends laterally from one side of the frame A of the machine and has formed thereon medially in alinement with the shaft 7 an enlarged bearing 11 having in its inner side a socket for snugly receiving an adjusting nut 12 which is held fast in said socket and receives therein the threaded shank 13 of a hand turning crank 14, the inner end of the shank being formed with a ball terminal 15 to engage and be swiveled in a fulcrum block 16 detachably fastened on a substantially cup shaped follower 17 which coöperates with the face plate 5 for the firm and secure clamping of a disk 18 therebetween as is clearly illustrated in Fig. 2 of the drawing.

The hollow formation of the follower 17 and the size thereof permit the same to accommodate castings or other attachments to a disk while in Fig. 2 there is illustrated the disk 18 having the integral axle 19, the latter being received in the bore of the shaft C when the said disk is clamped between the follower 17 and the face plate 5 as is clearly shown in Fig. 2 of the drawing.

Now should the disk 18 be of the type having a separable axle the said disk can be clamped in the machine and this is accomplished by inserting a bushing 20 in the hollow shaft C, the latter being formed with threads 21 for this purpose, and this bushing 20 is formed with a threaded central passage 22 for accommodating a threaded stud bolt 23 with which the disk is engaged when the axle is removed therefrom.

Formed in the yoke or bracket 9 on opposite sides of the point of connection of the shank 13 of the hand crank 14 therewith are holes 24 in either of which is removably engaged a stop pin 25 which projects into the path of movement of the hand crank 14 so as to prevent the turning thereof when the same has been adjusted to tighten the shank 13 against the fulcrum block 16 of the follower 17 so that the latter together with the face plate 5 will firmly clamp the disk therebetween without possibility of the latter working loose or any retrograde movement of the shank 13 which would result in the freeing of the disk.

It will be obvious that various styles or sizes of disks can be clamped in the machine for the sharpening thereof by a cutter held within a work holder as shown and described in Letters Patent Number 809,334 hereinbefore referred to.

It will be apparent that by reason of the construction of the machine a disk having a casting riveted thereon provided with an axle can be securely clamped for the sharpening of the disk and also that other disks can be sharpened where an axle is capable of removal therefrom, the face plate 5 being of a construction to hold any size or shape of disk either of the single or double cup formation.

From the foregoing it is thought that the construction and manner of operation of the machine will be clearly understood and therefore a more extended explanation has been omitted.

What is claimed is:

1. The combination with a disk sharpening machine, having a hollow driven shaft, of a face plate carried by said shaft, a yoke fixedly supporting and bridging the face plate, a follower coöperating with the face plate, and means engaged in the bracket to advance the follower.

2. The combination with a disk sharpening machine, having a hollow driven shaft, of a bushing removably fitted within the hollow shaft and adaptable to receive a stud bolt.

3. The combination with a disk sharpening machine, having a hollow driven shaft, of a face plate carried by said shaft, a yoke fixedly supporting and bridging the face plate, a follower coöperating with the face plate, means engaged in the bracket to advance the follower, and a removable calk carried by the face plate.

4. The combination with a disk sharpening machine, having a hollow driven shaft, of a face plate carried by said shaft, a yoke fixedly supporting and bridging the face plate, a follower coöperating with the face plate, means engaged in the bracket to advance the follower, and a removable calk carried by the face plate, said face plate being of substantially bowl shape.

5. The combination with a disk sharpening machine, having a hollow driven shaft, of a face plate carried by said shaft, a yoke fixedly supporting and bridging the face plate, a follower coöperating with the face plate, means engaged in the bracket to advance the follower, a removable calk carried by the face plate, said face plate being of substantially bowl shape and stop means carried by the yoke and coöperating with said first named means.

In testimony whereof, I affix my signature, hereto.

CHARLES M. STRAIN.