E. O. PARTRIDGE.

GUARD FOR GRINDING MACHINES.

APPLICATION FILED JULY 21, 1915.

1,217,996.

Patented Mar. 6, 1917.

2 SHEETS—SHEET 1.

Fig. 2.

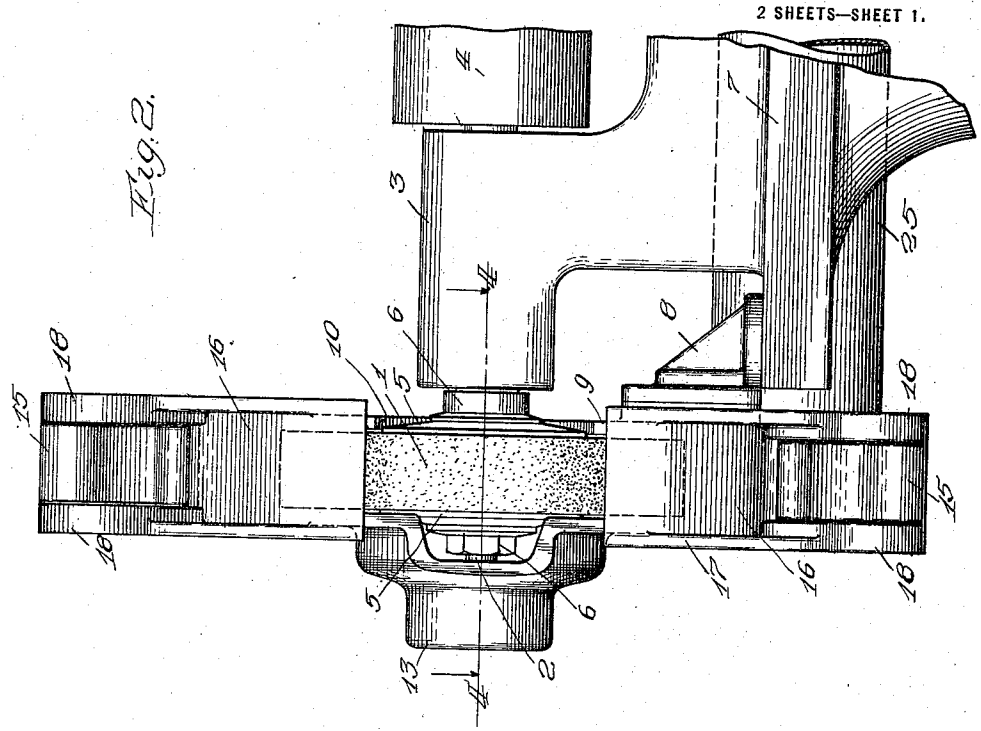
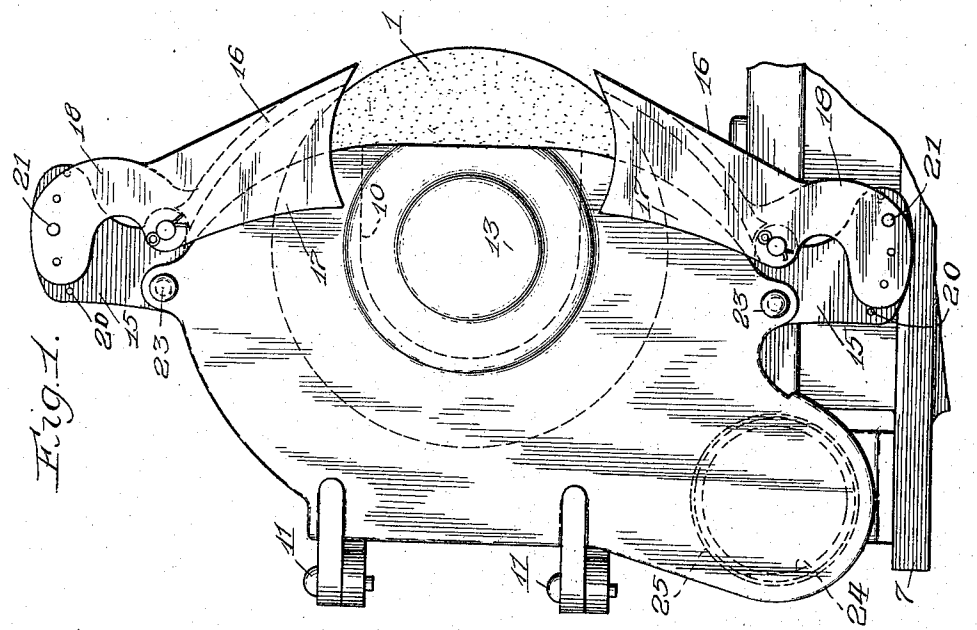


Fig. 1.



Witness:

P. G. Farrington

Inventor:

Edward O. Partridge

by Albert Scheible, Attorney

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Fig. 4.

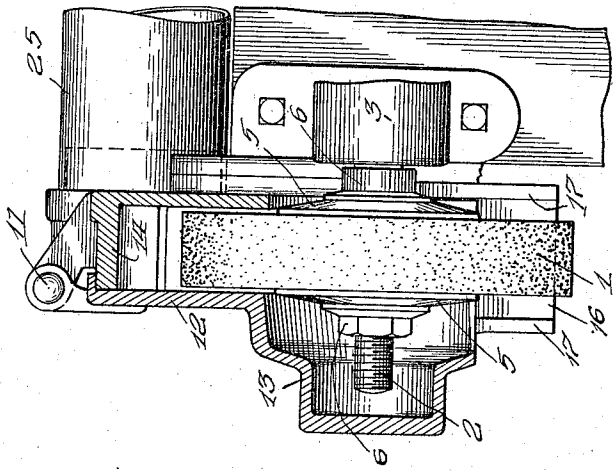
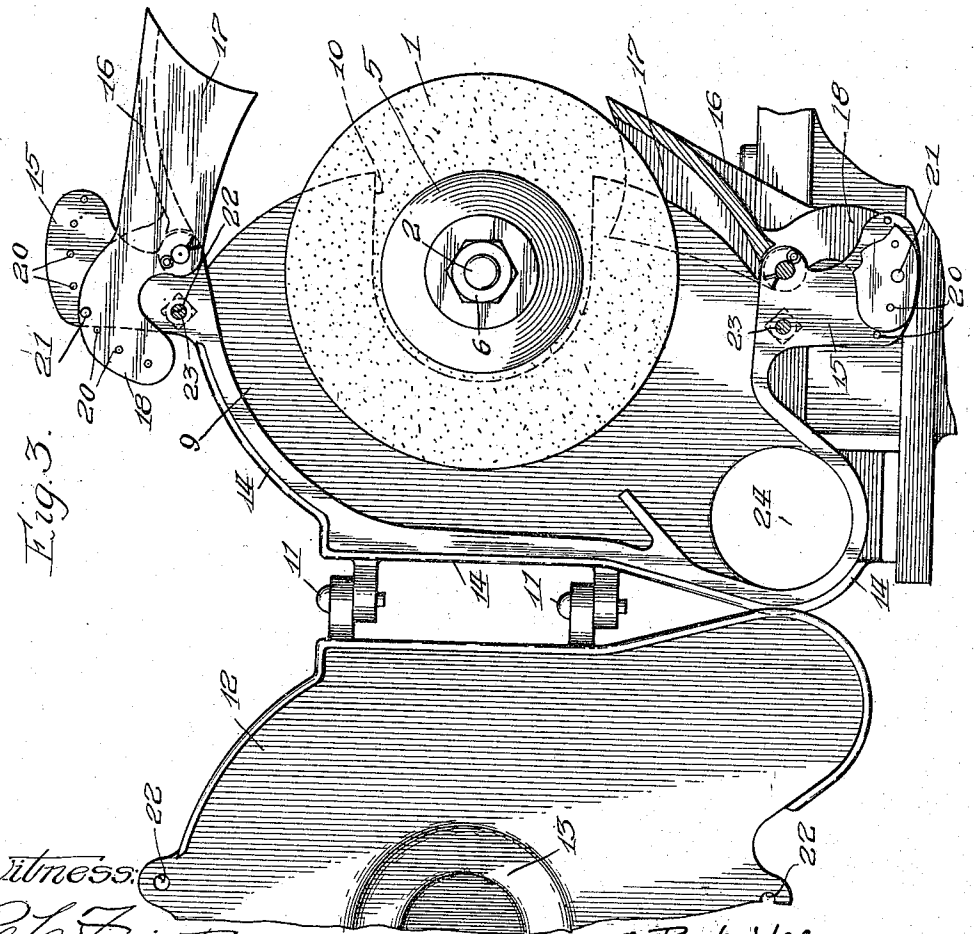


Fig. 3.



Witness:
R. L. Farrington

Inventor: Edward O. Partridge
by Albert Scheible, Attorney

UNITED STATES PATENT OFFICE.

EDWARD O. PARTRIDGE, OF CHICAGO, ILLINOIS.

GUARD FOR GRINDING-MACHINES.

1,217,996. Specification of Letters Patent. **Patented Mar. 6, 1917.**

Application filed July 21, 1915. Serial No. 41,031.

To all whom it may concern:

Be it known that I, EDWARD O. PARTRIDGE, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Guards for Grinding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to guards for grinding machines, its general objects being to provide a simple and relatively cheap guard which will effectively house all except a front peripheral portion of the abrasive wheel, and which will entirely house the end of the wheel arbor and any nut on this end of the arbor: to provide simple and effective means for adjusting portions of the guard to follow the changing contour of the wheel as the latter wears, and for permitting a ready replacing of the wheel: to provide suction means for drawing off the detached particles of both the wheel and the articles that are being ground upon the latter, and to so dispose the suction that fragments of the wheel will not be likely to enter and damage this pipe in case the wheel bursts. More detailed objects are to provide a guard having relatively movable side pieces laterally housing the wheel and effectively connected by a back peripherally housing the greater part of the wheel: to provide movable flaps or followers substantially forming continuations of said back, and having wings overlapping the side pieces and preventing the exit of detached particles between these flaps and the side pieces: to utilize the side wings for maintaining the movable side piece in its normal or operative position: to provide positive means for locking each flap in a plurality of positions corresponding to various diameters of the wheel: and to provide speedy access to the interior of the guard for removing any particles which may accumulate in the same.

In the drawings, Figure 1 is a fragmentary side elevation of a grinder equipped with the guard of my invention.

Fig. 2 is a fragmentary front elevation of the same.

Fig. 3 is a fragmentary elevation similar to Fig. 1 but with the guard opened to permit a removal or replacing of the abrasive wheel.

Fig. 4 is a fragmentary horizontal section along the line 4—4 of Fig. 2.

In the embodiment of the drawings, the grinder includes an abrasive wheel 1 mounted on a shaft or arbor 2 journaled in a bearing 3 and driven by a pulley 4, the wheel being clamped between washers 5 by nuts 6 threaded on the arbor 2. Secured to the base 7 of the grinding machine by a bracket 8 is the inner side piece 9 of the guard, which side piece has a notch 10 spanning the washer 5 on the side of the wheel facing the bearing 3. Pivoted to the side piece 9, as by pins 11 extending through suitable lugs, is the outer side piece 12, which latter has no notch but has a laterally extending double dome formation 13 normally housing the outer end of the arbor 2 and the nut 5 adjacent to this end of the arbor. Operatively connecting the two side pieces and preferably integral with the stationary side piece 9 is a back 14 which peripherally incloses the entire rear half of the wheel 1 and extends forwardly both at the top and bottom of the wheel, being enlarged at each end into a lug 15. Pivoted to each lug is a curved flap or follower 16 having wings 17 overlapping the outer edges of the two side pieces, this flap being preferably pivoted intermediate its ends and terminating at its rear end in a lug 18. The lugs 15 and 18 are provided with horizontal bores 20 adapted to be brought successively into alinement when the flap is moved about its pivot, thereby permitting a bolt 21 to be inserted in the alined bores of the two lugs so as to anchor the flap against movement about its pivot.

The two side pieces also preferably have alined apertures 22 for receiving bolts 23, thereby enabling the movable side piece to be clamped in its closed or operative position. The inner side piece 9 is preferably enlarged at its lower rear end and equipped with an aperture 24 leading to a suction pipe 25 through which any detached particles of either the abrasive wheel or the ground materials may be drawn off. When the guard is in operative position (as in Fig. 1) the side pieces, back and flaps combine to form a housing which only exposes a relatively small peripheral portion of the wheel at the front of the latter. The upper flap may be adjusted quite close to the wheel: while the lower flap is preferably adjusted so as to catch the downwardly directed particles

which are detached during the grinding, thus causing the latter to enter the guard and to be drawn off through the suction pipe 25. When the wheel wears, each flap or follower may be quickly adjusted by moving the bolt 21 from one to another of the alined holes in the said lugs, thus permitting the flaps to be effective as continuations of the back or peripheral portion of the guard. Moreover, the wings 17 will prevent any detached particles from flying out of the guard through the cracks between the flaps and the side pieces. Since these wings on each flap overhang the outer faces of the respective side pieces, they will also engage the latter thereby preventing the movable side from swinging open in case the bolts 23 were accidentally loosened or even omitted. However, by moving each flap sufficiently (as shown in the case of the upper flap in Fig. 3), the wings can readily be swung clear of the movable side piece, thereby permitting the latter to be swung open as in Fig. 3. When this is done, access is readily had to the wheel, so that this can be removed or replaced in a very few minutes. Moreover, this opening of the guard also affords access to the entire interior, thereby permitting this to be brushed out in case the suction has not been ample.

It will be evident from the drawings that the guard of my invention has but few parts and these of such design as to be readily made of steel or malleable iron: that all parts are positively locked, so that a bursting wheel will not shift them in position: that the needed adjusting is easily and quickly accomplished, and that a downwardly flying fragment will impact against the lower corner of the back instead of flying directly into the suction pipe. To improve the appearance, I preferably make the laterally recessed portion of the movable side piece in the shape of a double dome. However, I do not wish to be limited to this or other details of the construction herein disclosed, since these details might be varied in many ways without departing from the spirit of my invention.

I claim as my invention:

1. A guard for a grinding wheel and the shaft thereof, including a pair of side pieces disposed on opposite sides of the wheel and pivotally joined back of the wheel, one of said side pieces having a recessed portion housing an end of the shaft, the said pivotal joining being so disposed as to permit the last named side piece to be swung around to afford access to the said end of the shaft and to permit removal of the wheel.

2. A guard for a grinding wheel and the shaft thereof, including a pair of side pieces disposed on opposite sides of the wheel and pivotally joined back of the wheel, the said side pieces exposing a frontal portion of the wheel: and a pair of followers adjustably mounted on one of the side pieces at the front thereof and presenting tips directed toward each other and partially covering the said exposed frontal portion of the wheel, each of said followers having wings overlapping portions of the said side pieces.

3. A guard for a grinding wheel and the shaft thereof, including a pair of side pieces disposed on opposite sides of the wheel, one thereof rigidly mounted and the other movable laterally with respect to the wheel, the movable side piece having a recessed portion housing an end of said shaft.

4. A guard for a grinding wheel, including a pair of relatively movable side plates exposing a frontal portion of the wheel but otherwise extending radially beyond the periphery of the wheel, a back integral with one of the side plates and normally joining the edges of the said radially extending portions, a pair of followers pivoted upon the last named side plate and extending toward each other, and interlocking means associated respectively with the opposite ends of the followers and the last named side plate for latching the said followers in their operative positions.

EDWARD O. PARTRIDGE.