Jan. 30, 1945. S. A. BROWN 2,368,109

CURVED EYE SHIELD FOR GRINDERS

Filed June 7, 1943

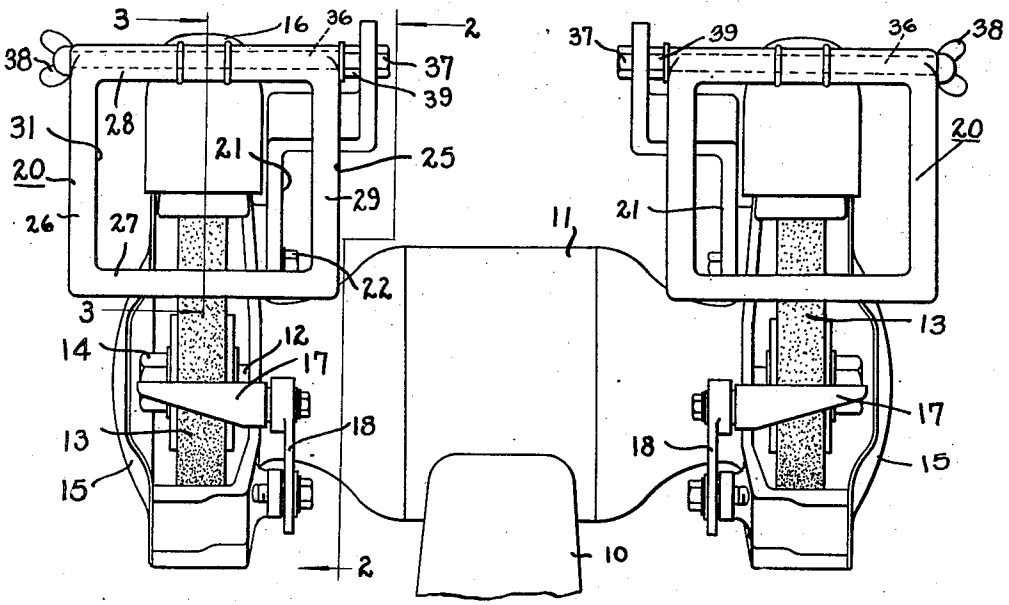


FIG. 1

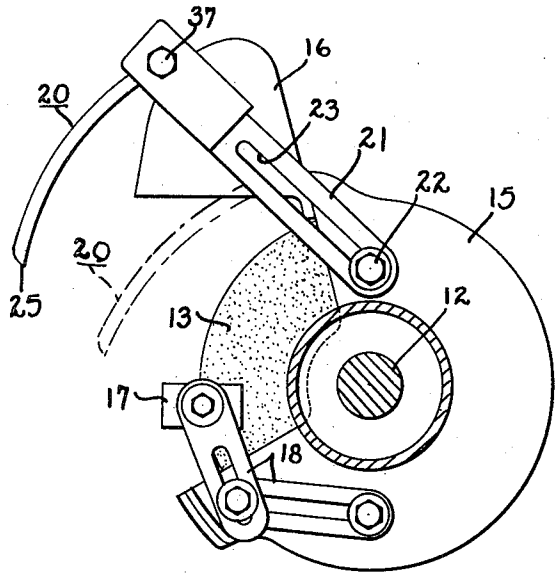
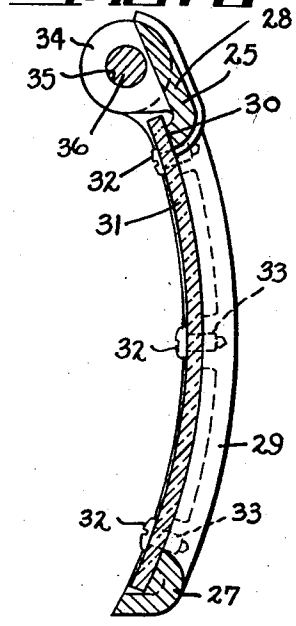


FIG. 2

FIG. 3



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Patented Jan. 30, 1945 2,368,109

UNITED STATES PATENT OFFICE

2,368,109

CURVED EYESHIELD FOR GRINDERS

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Application June 7, 1943, Serial No. 489,873

3 Claims. (Cl. 51—272)

This invention relates to eye shields that are used on machines having high speed rotating parts in order to protect an operator from flying bits of material that are propelled outwardly from the high speed part during its operation. Particularly, the invention relates to eye shields for use on grinding wheels to protect an operator's eyes from flying bits of emery or metal during operation of the wheel.

An object of the invention is to provide an eye shield for machines having high speed rotating parts that is curved in a manner to substantially fit the radius of the part whereby to permit an operator to hold an element to be worked upon more closely with respect to the high speed rotating part and thus obtain a firm grip on the element.

Another object of the invention is to provide a curved eye shield for the high speed rotating part to substantially eliminate glare from the window provided in the eye shield whereby an operator may more clearly inspect a part being worked upon.

Another object of the invention is to provide an eye shield for a grinding wheel that is provided with a curved inspection window, the position of which is adjustable relative to the grinding wheel to enclose the grinding area more completely and thereby prevent flying stray bits of emery or metal from striking the eyes of an operator.

Another object of the invention is to provide an eye shield for grinding machines and the like wherein the inspection window consists of a curved sheet of transparent synthetic resin, such as cellulose acetate.

Further objects and advantages will become apparent from the drawing and the following description.

In the drawing:

Figure 1 is a front elevational view of a grinding machine incorporating the curved eye shields of this invention.

Figure 2 is a side elevational view, partially in cross section of a grinding wheel using the curved eye shield of this invention and taken along line 2—2 of Figure 1.

Figure 3 is a vertical cross sectional view of the curved eye shield taken along line 3—3 of Figure 1.

In this invention the grinding machine consists of a pedestal 10 for supporting a driving motor 11 that has a drive shaft 12 extending from both ends of the motor 11.

The grinding units shown in Figure 1 are both of identical construction so that only one of the units will be described. Also, it will be understood that if it is desired that one of the grinding units can be replaced with a buffing unit or any other type of device that requires high speed rotation for its operation.

The drive shaft 12 carries a grinding wheel 13 that is retained upon the shaft by means of a nut 14. A semi-circular housing 15 encloses the major portion of the grinding wheel 13 to prevent sparks and particles of emery from being propelled from the wheel. The upper edge of the housing 15 carries a housing member 16 that is adapted to receive an electric light for illuminating the exposed working surface of the grinding wheel 13.

A tool rest 17 is carried upon the arms 18 and is adjustable toward and away from the surface of the grinding wheel 13 and is angularly adjustable in the conventional manner.

The eye shield 20 of this invention is carried upon an arm 21 that is adjustably mounted upon the housing 15 by means of the bolt 22, the bolt 22 extending through an elongated slot 23 provided in the arm 21 so that the eye shield 20 can be rotated about the axis of the bolt 22 for adjustment circumferentially around the grinding wheel 13 or can be adjusted toward and away from the surface of the grinding wheel 13.

The eye shield 20 consists of a frame member 25 that is preferably constructed of metal or may be of any other desirable material. The frame member 25 is provided with four edge walls 26, 27, 28 and 29 that define a substantially square space to provide a visual inspection opening that is positioned above the grinding wheel 13, as illustrated in Figure 1.

The walls 26, 27, 28 and 29 are provided with inwardly directed flanges that terminate in an arcuate surface. This arcuate surface 30 together with the walls 26 and 29 are curved upon a radius substantially the same as the radius of the grinding wheel 13 whereby the eye shield 20 can be placed in very close proximity to the surface of the grinding wheel 13 and will be spaced substantially uniformly from the surface of the grinding wheel throughout its entire area. The square space, previously referred to, is closed by means of a transparent window 31 that is curved to fit the arcuate surface 30 and is retained in position upon the frame 25 by means of the screws 32 that are threaded into suitable tapped holes 33 provided in the frame 25.

The transparent window 31 is preferably made from a synthetic resinous material such as cellu-

lose acetate to prevent the window from breaking easily. Also, the curvature imparted to the window 31 will break the usual glare that is produced by a planar surface so that the operator can more easily and clearly inspect the work that is being done upon an element that is being ground upon the grinding wheel 13.

The frame 25 is provided with an ear 34 on opposite edge walls 26 and 29 adjacent the upper edge wall 28 that is provided with a bore 35 to receive a long shaft or bolt 36 that extends therethrough. This shaft or bolt 36 is secured to the support arm 16 by extending therethrough and by providing a head or nut 37 on one end thereof and a wing nut 38 on the opposite end thereof, a spacer 39 being provided between the eye shield 20 and the arm 16. The eye shield 20 may thus be rotated on the shaft 36 to adjust the same relative to the surface of the grinding wheel 13.

In the drawing, and particularly in Figure 2, it will be noted that the eye shield 20 has been illustrated as being in a position of adjustment that is at its most remote position from the surface of the grinding wheel 13, but it will be readily appreciated that due to the length of the slot 23 in the arm 21 that the eye shield can be placed in much closer proximity to the surface of the grinding wheel 13 as illustrated by the dot-dash line position of the eye shield 20. In the latter position it will be appreciated that since the window 31 has a curved surface that the glare from the light contained in the housing 16 will not be reflected into the eyes of the operator, as would be the result if the surface of the window 31 was a flat planar surface.

While the invention disclosed and described herein constitutes a preferred form of the apparatus, yet it is understood that mechanical alterations can be made in the apparatus without departing from the spirit of the invention, and that all such modifications as fall within the scope of the appended claims are intended to be included herein.

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

1. In combination, a grinding machine having a grinding wheel, a safety guard housing having wall means disposed adjacent opposite walls of the grinding wheel and adjacent the peripheral surface thereof to substantially enclose the grinding wheel, an eye shield having a frame and a transparent inspection window curved on substantially the same radius of curvature as the radius of the periphery of the grinding wheel whereby to permit the surface of the eye shield to be positioned closely adjacent the peripheral surface of the grinding wheel, and arm means movably attached to said guard housing supporting said eye shield adjacent the portion of the grinding wheel that is left exposed by the guard housing and adjacent the peripheral surface of the grinding wheel.

2. In combination, a grinding machine having a grinding wheel, a safety guard housing having wall means disposed adjacent opposite walls of the grinding wheel and adjacent the peripheral surface thereof to substantially enclose the grinding wheel, an eye shield having a frame and a transparent inspection window curved on substantially the same radius of curvature as the radius of the periphery of the grinding wheel whereby to permit the surface of the eye shield to be positioned closely adjacent the peripheral surface of the grinding wheel, and arm means movably attached to said guard housing including means movably supporting said eye shield upon said arm means to support the eye shield adjacent the periphery of the grinding wheel that remains exposed by said guard housing and adjust the angular relationship as well as the spaced relationship between the eye shield and the peripheral surface of the grinding wheel.

3. In combination, a grinding machine having a grinding wheel, a safety guard housing having wall means disposed adjacent opposite walls of the grinding wheel and adjacent the peripheral surface thereof to substantially enclose the grinding wheel, an eye shield having a frame and a transparent inspection window curved on substantially the same radius of curvature as the radius of the periphery of the grinding wheel whereby to permit the surface of the eye shield to be positioned closely adjacent the peripheral surface of the grinding wheel, arm means movably attached to said guard housing including means movably supporting said eye shield upon said arm means to support the eye shield adjacent the periphery of the grinding wheel that remains exposed by said guard housing and adjust the angular relationship as well as the spaced relationship between the eye shield and the peripheral surface of the grinding wheel, a light supported by said housing and positioned above the exposed peripheral portion of the grinding wheel to illuminate the same, said arm means adjustably extending from said housing for selectively positioning said eye shield above or below said light.

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