Oct. 8, 1940. R. R. TEICHNER 2,217,501

SAFETY SHIELD

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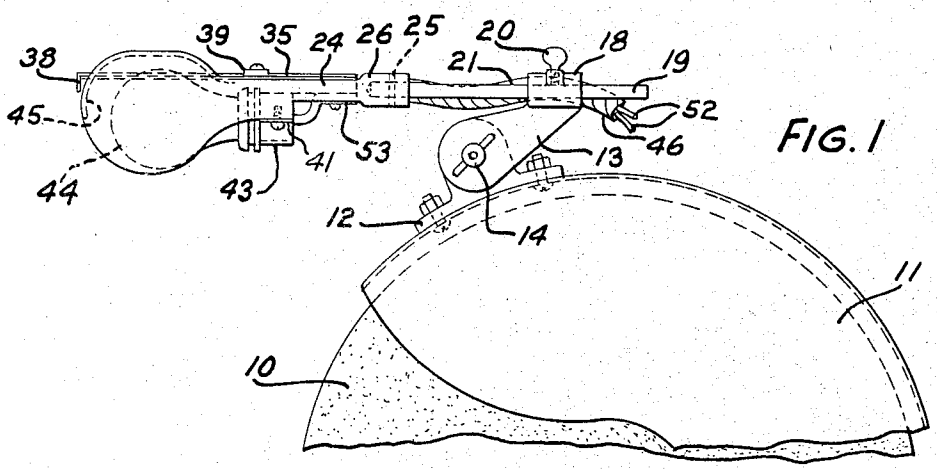


FIG. 1

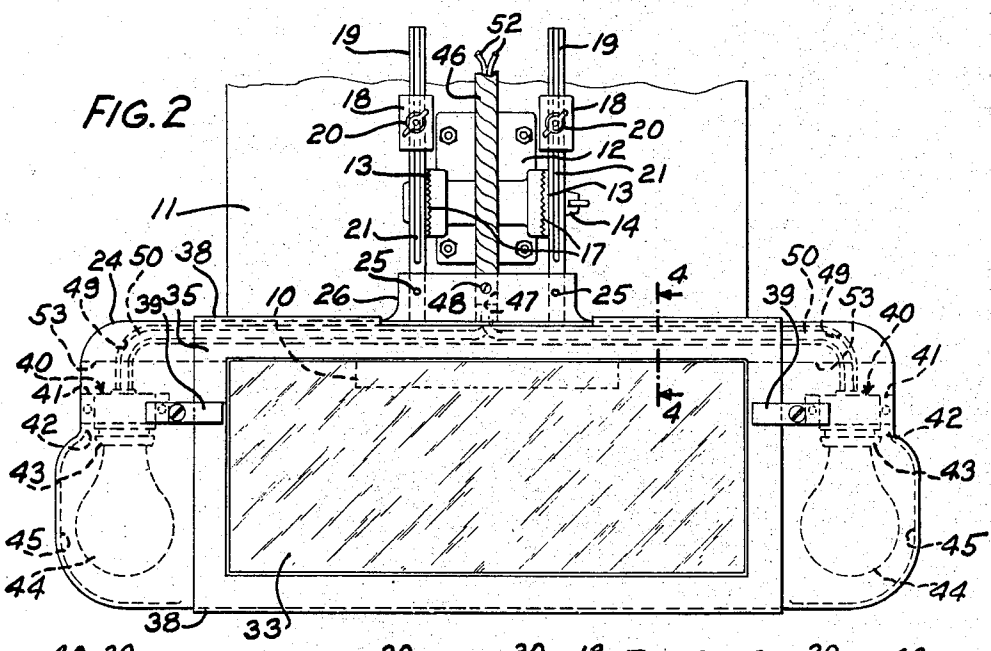


FIG. 2

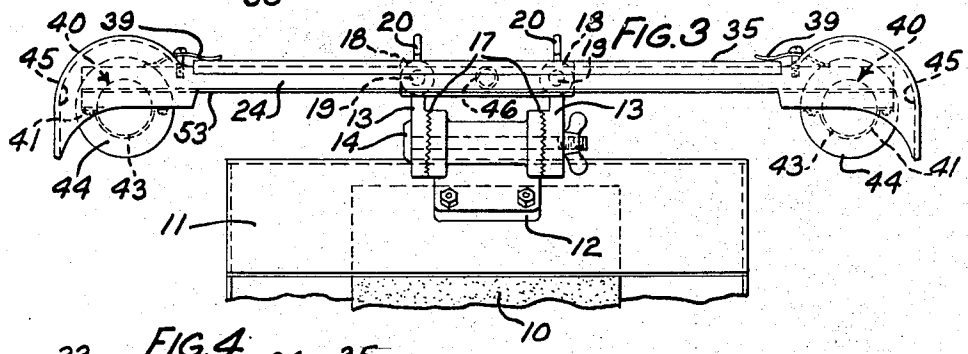


FIG. 3

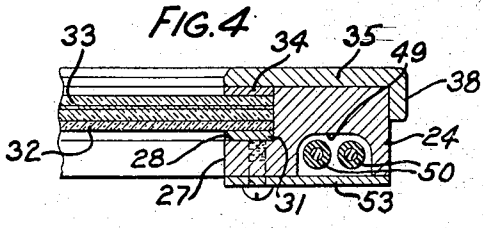


FIG. 4

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SAFETY SHIELD

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4 Claims. (Cl. 51—272)

This invention relates to safety shields or guards, and particularly to illuminated shields or guards for protecting the users of rotating machines such as grinding wheels, buffing wheels, circular saws and the like.

The object of the present invention is to provide an efficient and practical shield or guard of the illuminated type which can be readily spaced to and from the rotating machine.

In accordance with the above object, the invention in one embodiment thereof is illustrated as applied to a grinding machine which includes a housing. A frame is mounted on the housing having a plurality of adjustments relative to the grinding wheel surface and having recesses at each end within each of which is supported an electric lamp for illuminating the work and wheel from each side. Intermediate the lamps the frame supports two layers of transparent material through which the work may be observed, the outer layer of material being shatter-proof and the inner layer plain material to protect the former from abrasion in the ordinary use of the grinding machine. Means is provided for expeditiously releasing and replacing either of the layers of material.

Other objects and advantages of this invention will more fully appear from the following detailed description, taken in connection with the accompanying drawing, in which:

Fig. 1 is a fragmentary side view of a grinding wheel housing having mounted thereon a work illuminating and shield or guarding device embodying the features of this invention;

Fig. 2 is a plan view thereof;

Fig. 3 is a front elevational view thereof, and

Fig. 4 is an enlarged detail section taken on the line 4—4 of Fig. 2.

In the drawing, the usual simple form of grinding wheel and housing or hood therefor is shown by way of illustration. Referring to Fig. 1, the grinding wheel and housing or hood are indicated at 10 and 11, respectively. Fixed to the housing 11 is a bracket 12 to the outer surfaces of which are clamped a pair of pivotally adjustable arms 13 by means of a bolt extending through apertures in the bracket and arms and a thumb nut 14, the opposed abutting surfaces of the bracket and arms being serrated as indicated at 17 to provide firm clamping action therebetween. At their free ends the arms 13 are formed with integral collars 18 in which are entered rods 19. The rods 19 are adjustable longitudinally in the collars 18 and when the desired adjustment is reached thumb screws 20 threaded into the collars 18 are tightened against flat surfaces 21 on the rods. Supported upon the ends of the rods 19 and extending toward the front or the operator's position of the grinding machine is a rectangular frame 24, the rods being entered in and pinned at 25 to an apertured extension 26 of the frame.

The frame 24 is formed with a rectangular shaped aperture 27 (Fig. 4) which extends across the greater portion of its length and intermediate the ends of the frame. Surrounding the aperture 27 is a shouldered surface 28 (Fig. 4) upon which is cemented a gasket 31 of rubber or other suitable material. Resting upon the gasket 31 is a non-laminated sheet, such as a pane 32 of plain glass and resting upon the latter is a layer of material comprising a laminated shatter-proof structure, such as a pane 33 of shatter-proof or safety glass. Although the panes 32 and 33 are in the present embodiment described as of glass, any other suitable material may be substituted therefor. Upon the pane 33 is cemented a gasket 34 similar to the gasket 31. A retainer frame 35 for the panes of glass 32 and 33 surrounds and abuts the outer gasket 34 and engages the upper surface of the frame 24. The longitudinal sides of the retainer frame 35 are formed with depending flanges 38 for engaging similar sides of the frame 24, the flange at one side being cut away to clear the extension 26 of the frame 24. Spring clips 39 attached by screws to the frame 24 at each end of the retainer frame 35 and pressing against the upper surface thereof maintain the retainer frame in position. By unloosening the screws and rotating the clips 39 the retainer frame may be removed and either of the panes 32 and 33 of glass replaced.

The frame 24 at each end outside the ends of the panes of glass 32 and 33 are irregularly recessed as indicated at 40. Retained by a clamping member 41 in one portion 42 of each recess is a lamp socket 43, the recess portion being suitably shaped to receive and position the socket. The socket 43 carries an electric lamp 44, the lamp extending into an enlarged portion 45 of the recess 40. The walls of the recess portions 45 for the lamps are curved upwardly and downwardly around the lamp and adapted to direct light from the lamps to both sides of the grinding wheel 10 as well as the work and without interfering with the vision of the operator when the frame 24 has been properly adjusted by means of the pivotal arms 13 and the longitudi-

nally adjustable rods 19. A standard BX cable 46 is secured in an aperture 47 of the frame extension 26 by a clamping screw 48. Communicating with the aperture 47 are channels 49 in which are laid conductors 50 (Fig. 4) interconnecting conductors 52 of the cable 46 and terminals of the lamp sockets 43. A cover plate 53 for the greater portions of the channels 49 retains the conductors 50 in position.

From the above description it will be obvious that the frame 24 carrying the lamps 44 has a plurality of adjustments whereby the work and the wheel 10 may be efficiently illuminated in a manner best suited to an operator and without interfering with his vision while observing the work through the transparent panes of shatter-proof and plain glass carried in the frame. It will be apparent that by using an outer pane of shatter-proof glass and an inner pane of plain glass that the shatter-proof glass pane will be fully protected from abrasion in the ordinary use of the grinding machine by the pane of plain glass and upon the latter being damaged or marred it may be expeditiously removed and replaced by releasing the spring clips 39.

Various modifications and applications of the invention will suggest themselves to those skilled in the art, and such modifications and applications as fall within the spirit of the invention are intended to be covered by the scope of the appended claims.

What is claimed is:

1. In a guarding device, a frame supporting outer and inner abutting panes of glass for observing work being performed, the outer pane being shatter-proof and the inner pane being plain glass effective to protect the former from abrasion, and means for adjustably supporting said frame with respect to the work.

2. In a work illuminating and guarding device for grinding wheels, a frame having a shouldered recess, outer and inner layers of transparent material supported in said recess for observing work being performed at a grinding wheel, the outer layer of material being shatter-proof and the inner layer being plain material effective to protect the former from abrasion in the ordinary use of the grinding wheel, a frame supported on said first frame and surrounding said recess for retaining said layers of transparent material in said recess, and resilient members fixed to said frame and engaging said retainer frame for releasably holding the retainer frame in position.

3. In a work illuminating and guarding device for a grinding wheel, a frame supporting outer and inner layers of transparent material for observing work being performed, the outer layer of material being a laminated shatter-proof structure and the inner layer being a readily separable non-laminated sheet effective to protect the former from abrasion, said frame having integral portions at each end outside of the transparent material, each of said portions having an irregularly shaped recess at each end, an electric lamp socket positioned in one portion of said recess which is shaped to receive the same, a clamping member for retaining said lamp socket in said recess portion, and a lamp connected to said socket and positioned in another portion of said recess, said lamp recesses provided with upwardly and downwardly curved walls to direct light from the lamps to both sides of the work.

4. In grinding apparatus having a grinding tool, a frame supporting outer and inner layers of transparent material for observing work being performed at said tool, the outer layer of material being a laminated shatter-proof structure and the inner layer being a readily separable non-laminated sheet effective to protect the former from abrasion, and means for adjustably supporting said frame in a plurality of directions with respect to the work and tool, said means comprising a pivotally adjustable support and means longitudinally adjustable in said support and carrying said frame effective to permit horizontal movement of said frame.

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