Mar. 13, 1923. 1,447,996.

M. W. MUEHLHAUSER.

AUTOMATIC GUARD FOR GRINDING WHEELS.

FILED JAN. 20, 1922.

Fig. 1.

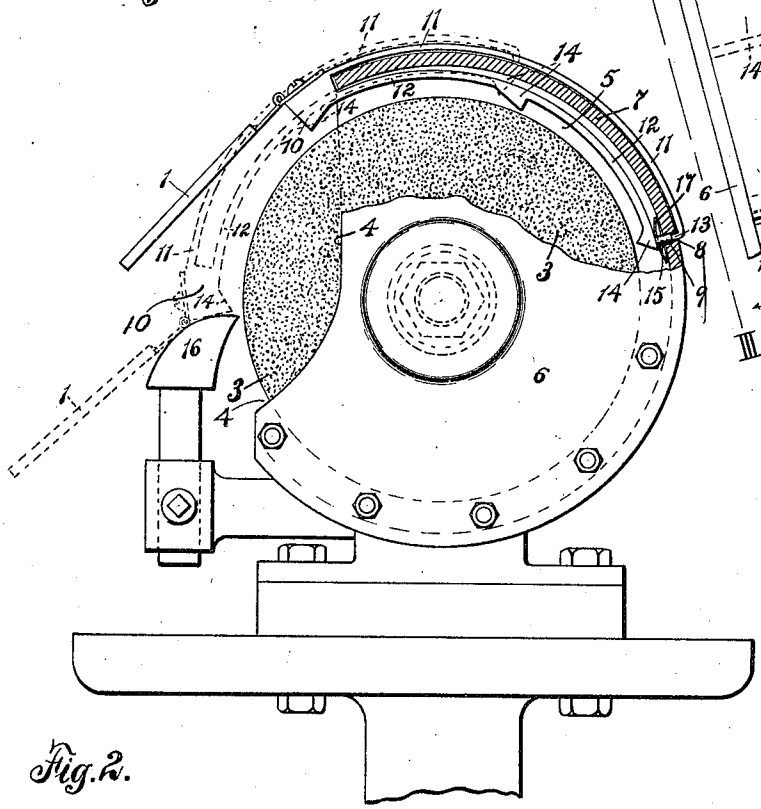


Fig. 3.

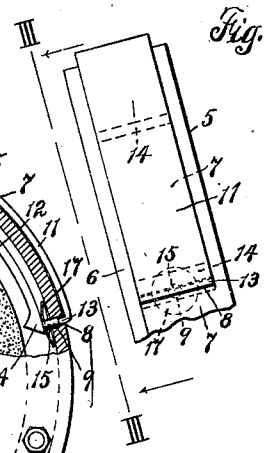
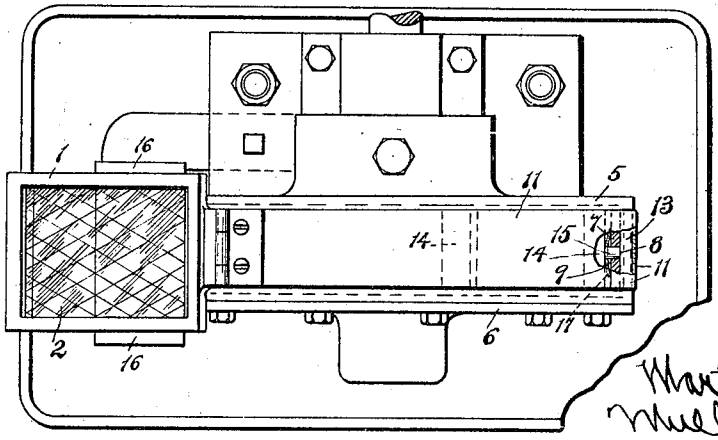


Fig. 2.



Inventor

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UNITED STATES PATENT OFFICE.

MARTIN WM. MUEHLHAUSER, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO SHERMAN W. SCOFIELD, OF CLEVELAND, OHIO.

AUTOMATIC GUARD FOR GRINDING WHEELS.

Application filed January 20, 1922. Serial No. 530,696.

To all whom it may concern:

Be it known that I, MARTIN W. MUEHLHAUSER, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented new and useful Improvements in Automatic Guards for Grinding Wheels, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to guards for grinding wheels and particularly to apparatus of this nature adapted for use upon emery wheel grinders. My invention further relates to a combination guard for protecting the eyes and face of the operator during the use of the wheel and for protecting the operator automatically from injury in the event that the wheel breaks.

The annexed drawing and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of the various mechanical forms in which the principle of the invention may be employed.

In said annexed drawing:

Figure 1 represents a side elevation of an emery grinding wheel, to which my improved guard is attached, the cover plate of the wheel housing being broken away;

Figure 2 represents a broken plan view of the elements shown in Figure 1; and

Figure 3 represents an elevation of the elements shown in Figure 1, taken from the plane indicated by the line III—III, Figure 1.

Referring to the annexed drawing, in which the several elements are indicated by the same ordinals in the respective views, I indicate, by the ordinal 1 the sheet metal frame of an eye guard for abrading or cutting tools, such as is particularly shown, described and claimed in U. S. Letters Patent, No. 1,259,050, said frame encompassing a reinforced glass body 2 in the form of eye guard shown in said Patent, No. 1,259,050. An opening exposing a portion of the emery wheel 3 is indicated by the ordinal 4 and through this opening the work is introduced to the wheel for the grinding operation, as is well understood by those skilled in the art. The eye guard 1 is normally held to cover the opening 4 so as to prevent the chips or particles of metal or abrading wheels from causing injury to the eyes and face of the operator.

In the improvements herein shown, described and claimed, I have provided a support for the eye guard 1 which automatically, upon the breaking of the wheel 3, will be actuated to cover the opening 4 to protect the operator from the flying wheel fragments which would be projected through said opening. I indicate the wheel housing by the ordinal 5, the same having the face plate 6. Slidably mounted upon the lateral wall 7 of this housing 5 is the support for the eye guard 1, hereinbefore mentioned, to which said eye guard is hingedly connected. This support consists of a bifurcated spring member having the base 10 and the two leaves or branches 11 and 12 disposed respectively exteriorly and interiorly of the wall 7. This bifurcated spring member is mounted substantially on top of the wall 7, as plainly shown in Figure 1, and is held to a position in which the eye guard 1 normally covers the opening 4 by means of a hooked extension 13 formed upon the exterior spring leaf 11 which engages a transverse slot 8 formed in the exterior surface of the wall 7. The interior surface of the wall 7 is formed with a hole 9 intersecting the slot 8 and adapted loosely to accommodate a pin 15 extending interiorly of the wall 7 and utilized for a purpose hereinafter explained. The interior branch 12 of the bifurcated movable spring member has formed upon its inner surface a number of projections or lugs 14 suitably disposed and spaced for the purpose hereinafter described, one of the suitable arrangements being plainly shown in Figure 1. The pin 15 is held to the hole 9 by means of the leaf member 12 of the movable spring guard, one of the lugs 14 being formed adjacent the pin 15, as plainly shown in Figure 1. A light crown spring washer 17 holds the member 12 in the position shown.

From the above description and the accompanying drawing, it will be evident that, if the wheel 3 breaks in operation, the centrifugally moving wheel fragments will strike the lugs 14 of the member 12, moving said member outwardly against the pressure of the light spring 17 toward the inner surface of the wall 7, thus causing the pin 9 to knock the extension 13 from the slot 8,

allowing the wheel fragments to exert further force upon the lugs 14 to move the spring member over the wall 7 into a position where the base 10 rests upon the tool rest 16, whereby the opening 4 is covered by the spring member, thus preventing the wheel fragments from being thrown through the opening 4, the tool rest 16 forming a stop for the covering movement of the spring member, and the hinged connection of the eye guard 1 and said spring member allowing the eye guard 1 to assume the position shown in dotted lines in Figure 1. This covering action of the spring guard is so concomitant with the centrifugal movement of the wheel fragments that the latter are effectively prevented from escaping through the opening 4.

What I claim is:—

1. A guard for grinding wheels comprising, in combination with a wheel housing having a wall opening to expose the work, a spring plate slidably mounted upon said housing and formed with an angular extension adapted to grip or to be hooked into the housing to hold the plate out of the area of vision of the work; and means adapted, upon the breaking of wheel, automatically to break the hold of said angular extension and to move said plate to cover said opening.

2. A guard for grinding wheels comprising, in combination with a wheel housing having a wall opening to expose the work, a bifurcated spring member slidably mounted upon both sides of a wall of the housing; means holding said member out of the area of vision of the work; and means adapted, upon the breaking of the wheel, automatically to move said member to cover said opening.

3. A guard for grinding wheels comprising, in combination with a wheel housing having a wall opening to expose the work, a bifurcated spring member slidably mounted upon both sides of a wall of the housing and formed upon its exterior branch with an annular extension adapted to grip or to be hooked into the housing to hold the member out of the area of vision of the work; a pin mounted on the interior branch of the spring member adjacent said angular extension and adapted, upon the breaking of the wheel, to be actuated to move said extension to break the hold of the same upon the housing; and means automatically moving the member to cover said opening, when said pin is so actuated.

4. A combination guard for grinding wheels comprising, with a wheel housing having a wall opening to expose the work, a transparent eye guard normally covering said opening; a metallic support for said guard movably mounted upon said housing; and means adapted, upon the breaking of the wheel, automatically to move said support to cover said opening.

5. A combination guard for grinding wheels comprising, with a wheel housing having a wall opening to expose the work, and a tool rest adjacent the lower portion of said opening; of a transparent eye guard normally covering said opening; a metallic support hingedly connected to said guard and movably mounted upon said housing; and means adapted, upon the breaking of the wheel, automatically to move said support to cover said opening, said tool rest forming a stop for the covering movement of said support.

Signed by me this 9th day of January, 1922.

MARTIN WM. MUEHLHAUSER.