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SPLASH GUARD FOR GRINDING MACHINES

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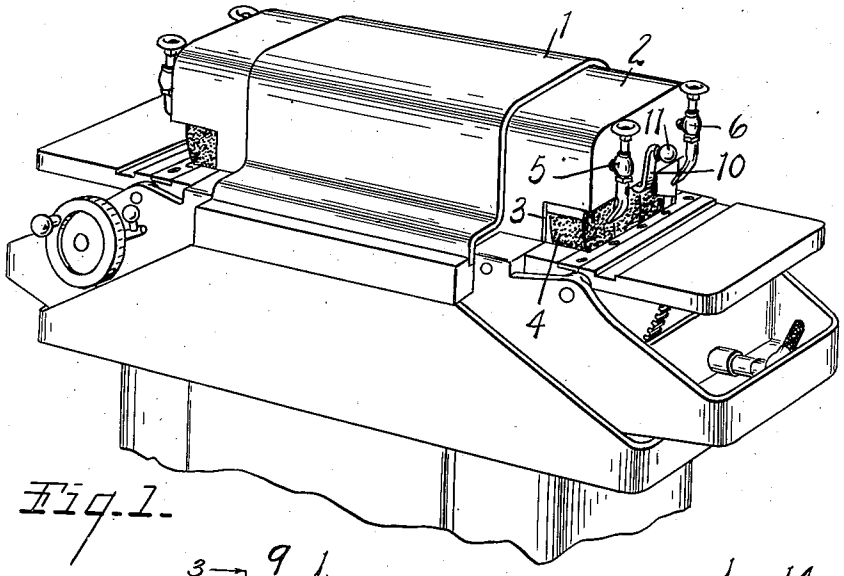


Fig. 1.

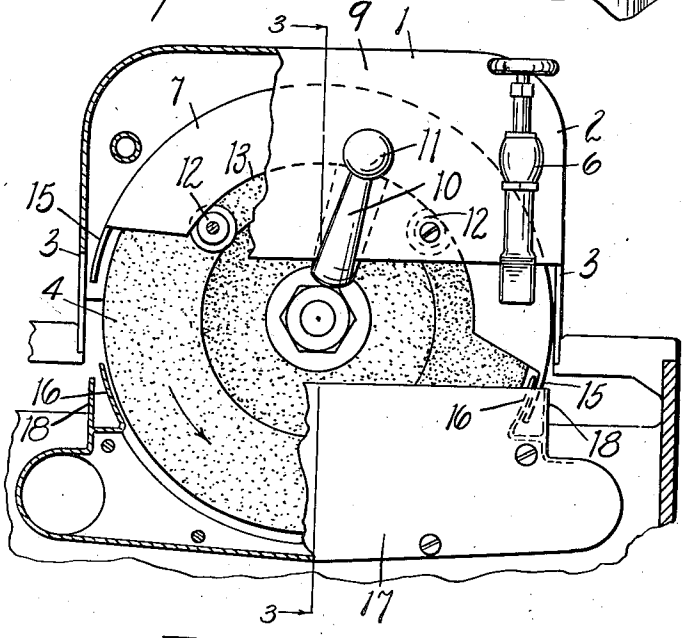


Fig. 2.

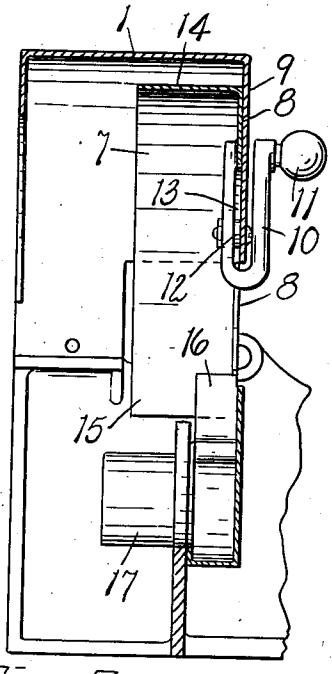


Fig. 3.

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SPLASH GUARD FOR GRINDING MACHINES

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12 Claims. (Cl. 51—272)

This invention relates to improvements in splash guard for grinding machines.

The main objects of this invention are:

First, to provide a grinding machine having a reversible wheel and means associated with the machine for controlling a coolant with which the wheel is supplied regardless of the direction of rotation thereof.

Second, to provide a machine of the type described having a wheel housing provided with a manually adjustable splash guard, shield or shutter adapted to be adjustably located in one position or another depending upon the direction of rotation of the grinding wheel to prevent splashing or spraying of the coolant from the wheel housing.

Third, to provide a wheel housing or hood for a grinding machine of the reversible wheel type, which housing has opposed work receiving slots on the sides thereof, in combination with a selectively positionable splash guard adapted to close the slot not being employed, to prevent splashing of coolant therefrom.

Fourth, to provide an adjustably positionable guard or shield for a reversible grinder having the foregoing advantages and which is simple, inexpensive and easy to install and operate.

Further objects relating to details and economies of my invention will appear from the description to follow. The invention is defined in the claims.

A structure embodying the features of my invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a fragmentary perspective view illustrating a grinding machine of the reversible wheel type provided with the improved splash control means of the present invention.

Fig. 2 is a fragmentary view in end elevation partially broken away and in vertical section to illustrate structural details of the present improvement, the parts being shown in the operative position of the splash guard for rotation of the machine wheel in the direction illustrated by the arrow.

Fig. 3 is a fragmentary view in section on a line corresponding to line 3—3 of Fig. 2.

This invention relates to grinding machines of the type in which the wheel is driven by a reversing motor or reversible so that the direction of rotation of the wheel may be controlled, for example, for convenience in grinding right or left-hand tools, it being understood that the grinding is done on the face of the wheel.

In the drawing I have illustrated and generally designated by the numeral 1 a machine of this type, which is provided with a wheel housing or hood 2 having slot-like side openings 3 through which access is had to either side of the wheel 4 depending upon the side of the wheel to which it is desired to present the work. In Fig. 2 I have illustrated the wheel as rotating in counter-clockwise direction, hence the work would in such case be presented to the grinding surface of the wheel at the left-hand side. However, it will be understood that, with the direction of rotation reversed, the work to be ground would be presented at the opposed side.

The machine is provided with suitable manually controlled valved spouts or sprays 5, 6 through which a liquid coolant or coolant spray is directed against the wheel, such provision being known.

It is the purpose of the invention to provide a shield, guard or shutter incorporated with the wheel housing and devised to confine the coolant within the wheel housing and prevent its splashing or spraying through the slot 3 which is not in use. To this end I provide a manually adjustable shutter or shield 7 which is arcuate in outline, in the illustrated embodiment approximately semicircular, and L-shaped in section (see Fig. 3). The L-shaped section defines a vertically extending flange 8 which is angularly slidable interiorly of and against the end panel 9 of housing 2 and is provided with a U-shaped handle 10 which straddles the vertical downwardly extending portion of said panel adjacent the upper half of the wheel, so as to bring operating knob 11 on the handle exteriorly of the housing 2 for convenient access by the operator. The aforesaid end housing panel 9 has a pair of flanged rollers 12 rotatably mounted on the inner side thereof. These rollers supportingly receive the arcuate lower edge 13 of the shutter flange 8, so that the latter is angularly shiftable on the rollers through a predetermined arc. At right angles to said flange 8 the further flange 14 of the L-section shutter extends laterally a sufficient distance to at least overlap the wheel 4 axially and insure that splash therefrom will not be thrown out the unused slot 3.

As stated above, the shutter or shield 7 is illustrated in Fig. 2 in one of its alternate selective operative positions. It should be noted that the horizontally extending flange 14 is provided at either arcuate end thereof with a full width lip 15 of substantial angular extent. These lips angularly overlap a coacting fixed arcuate lip 16 mounted on each opposite side of the housing

end closure 17. Said end closure is in the form of a hollow open ended stamping applied to the main housing at the end thereof. The lips 16 are axially coextensive with a portion of the slot 3 and the closure has further side wall elements 18 on opposite sides thereof spaced from said fixed lips so that the lip 15 on the shield is receivable therebetween. (See Fig. 2.) The fixed lips are mounted internally of the side slot-carrying walls of the housing immediately below the lower edge of the respective slots 3 and the coacting pair of movable and fixed lips 15, 16 angularly overlap in the operative position of the shutter or shield to give positive assurance that no coolant will be splashed or thrown upwardly and outwardly through the unused slot 3 near the outer end of the housing.

It is believed that the operation of the device is perfectly obvious from the foregoing description. The operator of the wheel need only flip the shield to the desired position thereof, depending upon the direction of rotation of the wheel, whereupon the annoyance of splashing coolant and the loss of coolant through the unused work slot are entirely avoided.

The foregoing structure is exceedingly simple, yet, because of its simplicity, fool-proof and highly effective for its intended purpose. It may be readily installed on various types of reversible grinders.

An embodiment of the invention which incorporates the principles of the invention in a highly desirable manner has been illustrated and described, though I am aware that other embodiments within the intent of the invention will suggest themselves to those skilled in the art. It should be understood that the foregoing terminology is used only descriptively rather than in a limiting sense, and with full intention to include equivalents of the features shown and described, within the scope of the following claims.

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

1. In combination with the wheel housing of a reversible grinding wheel and means for supplying coolant to and against the wheel, said housing having side work presenting slots in diametrically opposed relation with reference to the periphery of said wheel, an arcuate shield disposed internally of said housing having an arcuate flange projecting axially substantially coextensive with the periphery of the wheel and a radial flange provided with an arcuate bearing surface in its inner edge, said wheel housing having rollers thereon on which said bearing surface is disposed for angular adjustment of said shield in the housing, said arcuate flange being of sufficient arcuate extent to substantially cover one of said slots while exposing the other thereof, said housing having further shield means angularly overlapping and coacting with said shield to prevent splashing of coolant through said covered slot.

2. In combination with the wheel housing of a reversible grinding wheel and means for supplying coolant to and against the wheel, said housing having side work presenting slots in opposed relation with reference to the periphery of said wheel, an arcuate shield disposed internally of said housing having an arcuate flange projecting axially substantially coextensive with the periphery of the wheel and a radial flange provided with an arcuate bearing surface in its inner edge, said wheel housing having means supporting said shield for angular adjustment in the housing, said arcuate flange having portions adapted to substantially cover one of said slots while exposing the other thereof, said housing having further shield means angularly overlapping and coacting with said shield to prevent splashing of coolant through said covered slot.

3. In combination with the wheel housing of a reversible grinding wheel and means for supplying coolant to and against the wheel, said housing having side work presenting slots in opposed relation with reference to the periphery of said wheel, an arcuate shield disposed internally of said housing having an arcuate flange projecting axially substantially coexetensive with the periphery of the wheel and a radial flange provided with an arcuate bearing surface in its inner edge, said wheel housing having means supporting said shield for angular adjustment in the housing, said arcuate flange having portions adapted to substantially cover one of said slots while exposing the other thereof, to prevent splashing of coolant through said covered slot.

4. In combination with the wheel housing of a reversible grinding wheel and means for supplying coolant to said wheel, said housing having work presenting side openings in opposed relation with reference to the periphery of said wheel, an angularly adjustable shield disposed internally of said housing, said wheel housing and shield having coacting means for the angular adjustment of said shield in the housing, said shield having portions spaced with reference to the periphery of the wheel adapted to substantially cover one of said openings while exposing the other thereof, and vice versa, depending on the angular position of the shield, said housing having further shield means overlapping and coacting with said respective shield portions to prevent splashing of coolant through said covered opening.

5. In combination with the wheel housing of a reversible grinding wheel and means for supplying coolant to said wheel, said housing having work presenting side openings in opposed relation with reference to the periphery of said wheel, an angularly adjustable shield disposed internally of said housing, said wheel housing and shield having coacting means for the angular adjustment of said shield in the housing, said shield having portions spaced with reference to the periphery of the wheel adapted to substantially cover one of said openings while exposing the other thereof, and vice versa, depending on the angular position of the shield, to prevent splashing of coolant through said covered opening.

6. A wheel housing for a reversible, coolant supplied grinding wheel, comprising an arcuate shield mounted for arcuate swinging movement in the housing, said housing having openings therein in opposed relation to one another with reference to the axis of said wheel through which work is presented to the latter, and said shield having portions positionable in closing relation to said openings, depending upon the arcuate position of the shield in the housing, said shield portions being substantially coextensive axially with the wheel to prevent splashing of coolant through the unused opening in the operation of the wheel, said portions being located on the shield whereby one of said openings is substantially closed thereby while the other is exposed and vice versa, said housing having guard elements thereon which

are angularly overlapped by said shield portions in the operative position of the latter.

7. A wheel housing for a reversible, coolant supplied grinding wheel having openings therein in opposed relation to one another with reference to the axis of said wheel through which work is presented to the latter, and simultaneously shiftable shield elements positionable in closing relation to said openings, said shield elements being substantially coextensive axially with the wheel to prevent splashing of coolant through the unused opening in the operation of the wheel, said elements being positioned relative to one another whereby one of said openings is substantially closed thereby while the other is exposed and vice versa, said housing having guard elements thereon which are angularly overlapped by said shield portions in the operative position of the latter.

8. A wheel housing for a reversible, coolant supplied grinding wheel, comprising an arcuate shield mounted for arcuate swinging movement in the housing, said housing having openings therein in opposed relation to one another with reference to the axis of said wheel through which work is presented to the latter, and said shield having portions positionable in closing relation to said openings, depending upon the arcuate position of the shield in the housing, said shield portions being substantially coextensive axially with the wheel to prevent splashing of coolant through the unused opening in the operation of the wheel, said portions being located on the shield whereby one of said openings is substantially closed thereby while the other is exposed and vice versa.

9. A wheel housing for a reversible, coolant supplied grinding wheel, having openings therein in opposed relation to one another with reference to the axis of said wheel through which work is presented to the latter, and simultaneously shiftable shield elements positionable in closing relation to said openings, said shield elements being substantially coextensive axially with the wheel to prevent splashing of coolant through the unused opening in the operation of the wheel, said elements being positioned relative to one another whereby one of said openings is substantially closed thereby while the other is exposed and vice versa.

10. In combination with the wheel housing of a reversible grinding wheel to which coolant is supplied, shield means mounted in said housing for adjusting movement therein relative to the housing and wheel, said housing having openings therein in opposed relation to one another with reference to the axis of said wheel and said shield means including elements selectively positionable in obstructing relation to said respective openings, depending upon the position thereof in the housing, said shield elements being connected to one another for simultaneous shifting movement and being positioned relative to one another in axial overlapping relation to the openings and wheel, whereby one of said openings is obstructed while the other is exposed, and vice versa, to prevent splashing of coolant through the unused opening in the operation of the wheel, said housing having guard elements thereon which are angularly overlapped by said shield portions in the operative position of the latter.

11. In combination with the wheel housing of a reversible grinding wheel to which coolant is supplied, shield means mounted in said housing for adjusting movement therein relative to the housing and wheel, said housing having openings therein in opposed relation to one another with reference to the axis of said wheel and said shield means including elements selectively positionable in obstructing relation to said respective openings, depending upon the position thereof in the housing, said shield elements being connected to one another for simultaneous shifting movement and being positioned relative to one another, whereby one of said openings is obstructed while the other is exposed, and vice versa, to prevent splashing of coolant through the unused opening in the operation of the wheel, said housing having guard elements thereon which are angularly overlapped by said shield portions in the operative position of the latter.

12. In combination with the wheel housing of a reversible grinding wheel to which coolant is supplied, shield means mounted in said housing for adjusting movement therein relative to the housing and wheel, said housing having openings therein in opposed relation to one another with reference to the axis of said wheel and said shield means including elements selectively positionable in obstructing relation to said respective openings, depending upon the position thereof in the housing, said shield elements being connected to one another for simultaneous shifting movement and being positioned relative to one another, whereby one of said openings is obstructed while the other is exposed, and vice versa, to prevent splashing of coolant through the unused opening in the operation of the wheel.

EDWARD C. KRUEGER.