Oct. 29, 1940. T. F. ESERKALN ET AL 2,219,444

GRINDING WHEEL DUST HOOD

Filed Dec. 2, 1937 2 Sheets-Sheet 1

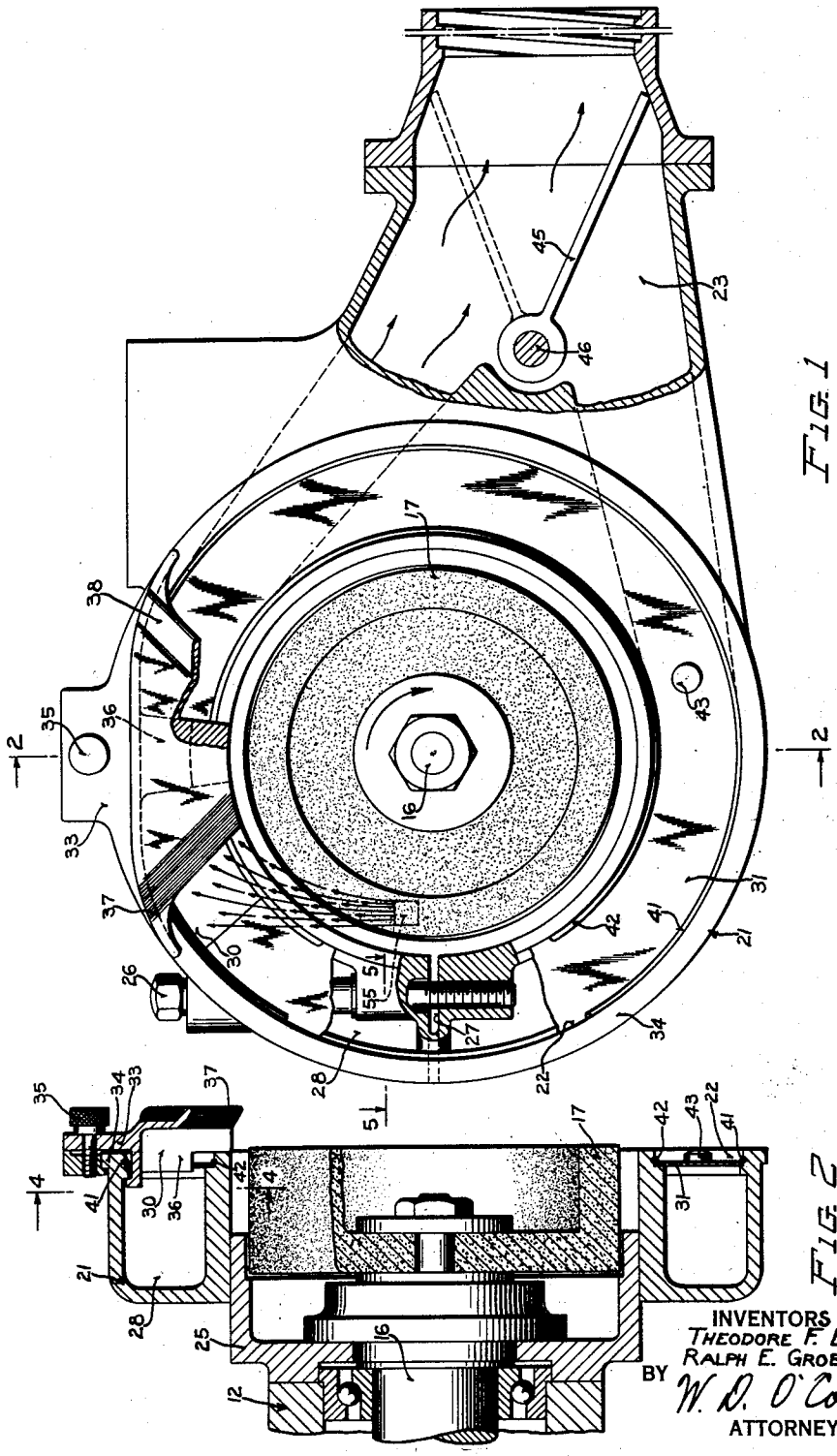


FIG. 1

FIG. 2

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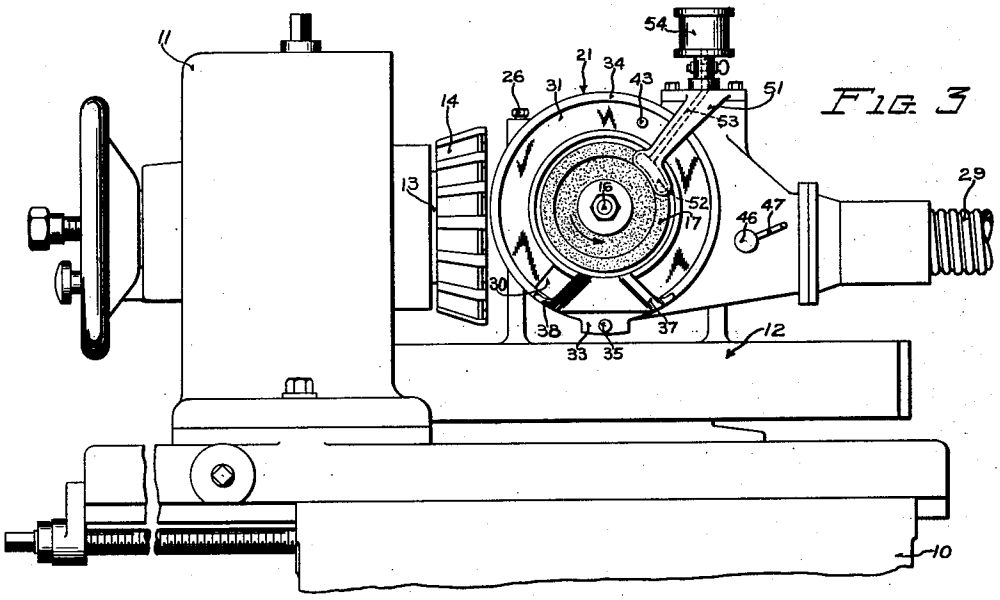


FIG. 3

FIG. 4

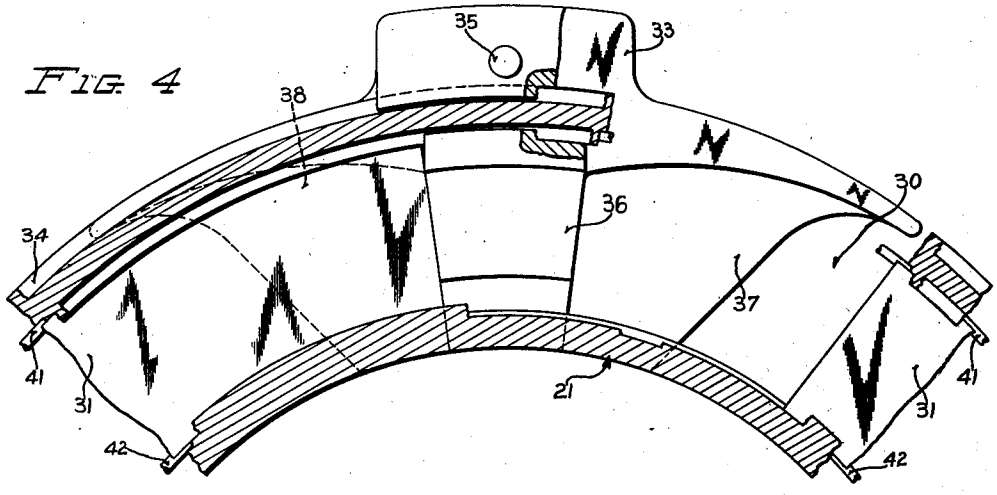
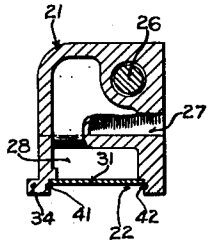


FIG. 5



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UNITED STATES PATENT OFFICE

2,219,444

GRINDING WHEEL DUST HOOD

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Application December 2, 1937, Serial No. 177,698

17 Claims. (Cl. 51—273)

This invention relates generally to grinding apparatus and more particularly to an improved dust collecting hood for a grinding wheel.

Grinding machines are ordinarily provided with suction hoods of various kinds for catching dust from their grinding wheels, the hoods being mounted usually in fixed positions at some distance from the regions on the wheels at which grinding operations occur. A dust-catching hood of this type, mounted at a considerable distance from the grinding zone, must necessarily present a dust-receiving opening of relatively large size in order to be of any use, inasmuch as the dust particles thrown from the wheel spread over an area of increasing size as they travel from the grinding zone. Since the suction opening of the hood must be relatively large, the velocity of the air flowing into it is correspondingly relatively low, with the result that the suction force acting upon the dust particles is insufficient in the region where a strong suction is most needed to draw the dust into the hood.

A general object of the present invention is to provide an improved and more effective dust collecting hood for a grinding wheel.

Another object of this invention is to provide a dust-collecting hood capable of exerting a strong, concentrated suction upon dust particles thrown from a grinding wheel.

Another object of the invention is to provide a grinding wheel dust-collecting hood having its dust receiving opening disposed close to the point of origin of the dust particles.

Another object of the invention is to provide a grinding wheel dust-collecting hood in which the dust-receiving opening is so restricted and so positioned as to cause the inflowing current of air to move at sufficiently high velocity to draw rapidly moving dust particles into the hood.

Another object of the invention is to provide a dust-collecting hood in which the inflowing air stream moves in direction at right angles to the path followed by the dust particles thrown tangentially from the grinding wheel.

Another object of the invention is to provide an improved combined dust-collecting hood and guard for a grinding wheel.

Another object of the invention is to provide a combined dust-collecting hood and grinding wheel guard that is adapted to be carried by the wheel supporting structure, and that is capable of adjustment to accommodate it to the various grinding positions assumed by the wheel.

Another object is to provide a dust-collecting hood that is adjustable in manner to present a restricted opening for receiving dust thrown from a grinding wheel at a position close to a grinding operation occurring at any predetermined point on the circumference of the wheel.

Another object is to provide a dust-receiving hood for a grinding wheel that is adjustable to receive dust from the wheel when it is operating in either direction of rotation.

Another object is to provide a dust catching hood for a grinding wheel that may be adjusted readily during a grinding operation to best position it for catching the dust being thrown from the wheel.

Another object is to provide a dust-collecting hood for a grinding wheel of cup shape, in which only a relatively small dust-catching nozzle extends forward beyond the grinding face of the wheel.

A further object is to provide an improved cutter grinder having an efficient and readily adjustable dust collecting hood associated with its grinding wheel.

According to this invention, an improved grinding wheel dust-collecting hood is arranged to present a dust receiving opening of restricted size near the point at which grinding occurs, and in position to exert a strong concentrated suction upon the dust particles while they are following a relatively narrow path in being thrown from the wheel. In order that grinding may be performed at different angular positions on the wheel face, the hood is made adjustable in manner to permit moving the dust-receiving opening circumferentially to position it for most advantageously drawing in the dust. To enable the opening to be disposed near the grinding zone without interfering with the work being ground, the hood is arranged to present the opening at right angles to the path of the dust particles, a small dust deflecting nozzle being adjustably mounted on the face of the hood for movement into the path of the dust stream to intercept the heavier particles and guide them into the opening. The hood is disposed to serve also as a guard for the grinding wheel, and it is formed hollow to constitute a duct for exhausting the air and dust. To provide for catching dust from the wheel when it is operated in either direction, the nozzle is of double construction.

The foregoing and other objects, which will become more fully apparent from the following detailed description of a combined grinding wheel dust hood and guard exemplifying a preferred embodiment of this invention, may be achieved by the apparatus therein set forth and shown in the accompanying drawings, in which:

Figure 1 is a view in end elevation of a grinding wheel spindle having associated therewith an improved dust collecting hood and wheel guard embodying the invention, parts of the hood having been broken away to better show its construction;

Fig. 2 is a view in vertical longitudinal section of the grinding wheel spindle and dust hood,

taken approximately on the plane represented by the line 2—2 in Fig. 1;

Fig. 3 is a general view in end elevation of grinding mechanism equipped with the combined dust hood and wheel guard shown in Fig. 1, the apparatus being shown in reduced scale with non-essential parts broken away;

Fig. 4 is an enlarged fragmentary view of part of the dust hood, largely in vertical section taken approximately on the plane represented by the line 4—4 in Fig. 2; and

Fig. 5 is a detailed sectional view of the hood or wheel guard member, taken on the plane represented by the line 5—5 in Fig. 1.

Referring more specifically to the drawings, the particular improved grinding wheel dust hood and guard shown by way of illustration as a practical embodiment of this invention, is depicted as associated with a grinding wheel of cup shape mounted on a grinding machine of the type especially adapted for sharpening milling cutters. The illustrative cutter grinding mechanism, shown generally in Fig. 3, is similar in structure and function to the cutter grinder disclosed and claimed in the co-pending application of Frank W. Curtis, Serial No. 748,630, filed October 17, 1934 and issued May 31, 1938, as Patent No. 2,118,967.

As more fully set forth in the co-pending application referred to, the cutter grinder shown in Fig. 3 comprises essentially a base 10 upon which are mounted relatively movable elements including a cutter supporting bracket or unit 11, and a grinding wheel supporting head or unit 12. The cutter supporting unit 11 is capable of linear and angular adjustment in a horizontal plane on the base 10 and it carries a rotatable spindle 13 arranged for vertical adjustment and adapted to support a cutter 14 in position to be ground.

The grinding wheel supporting unit 12 carries a rotatable grinding wheel spindle 16 mounted for angular adjustment in a vertical axial plane and provided at one end with a grinding wheel 17 of cup shape. The entire wheel supporting unit 12 may be adjusted along the base in the direction of its spindle axis to bring the grinding wheel into contact with the cutter 14, and the unit may be moved through a grinding stroke in direction transverse to its spindle axis to pass the forward face of the wheel over the cutter to grind it.

By reason of the various adjustments provided, the relationship between the edge of a tooth to be ground on the cutter 14 and the forward grinding face of the wheel 17 may be so established as to provide any desired angle of engagement between the wheel face and the cutting edge. After the desired relative adjustment of the wheel and cutter has been effected, the wheel may be traversed back and forth through its grinding stroke past the cutter to grind one tooth, and then the spindle 13 may be turned to present another tooth of the cutter for grinding, as more fully explained in the previously mentioned co-pending application.

According to the present invention, the grinding apparatus is provided with a combined dust-collecting hood and wheel guard arranged to move bodily with the grinding wheel and so constructed as to function effectively in collecting dust from the wheel without interfering with the work being ground. To this end the main part of the guard and hood is mounted to encircle the grinding wheel in manner to lie slightly in the rear of the plane of the grinding face, and is arranged to present a restricted dust-receiving opening close to the point at which the grinding operation takes place, a relatively small dust catching nozzle being the only part extending forward beyond the face of the grinding wheel.

As best shown in Figs. 1 and 2, the combined grinding wheel dust hood and guard to which this invention is particularly directed, comprises essentially an annular hollow body or guard member 21 of channel shape in section, disposed to encircle the grinding wheel 17, with its forward face slightly in rear of the grinding face of the wheel, and mounted for movement bodily with the wheel spindle. An annular opening 22 presented in the forward face of the guard between its inner and outer elements, communicates with the hollow interior thereof, which connects with a tapered discharge chamber 23 at the right side of the hood, as shown in Fig. 1. As best shown in Fig. 2, the annular portion of the guard 21 is fitted upon a cylindrical shoulder or collar 25 of the wheel supporting unit 12 in manner to be adjustable angularly for positioning the exhaust chamber 23 and also to be adjustable axially for positioning the forward face of the guard relative to the forward grinding face of the wheel 17. To clamp the guard 21 to the collar 25 in adjusted position, there is provided a clamping bolt 26 that extends tangentially across a radial slot or kerf 27 cut partially through the guard, as shown in Figs. 1 and 5, in manner to provide for contracting the guard upon the collar 25 when the bolt 26 is tightened.

As appears in the drawings, the annular portion of the guard 21 constitutes an effective enclosure completely encircling and protecting the periphery of the grinding wheel. The annular hollow interior of the guard constitutes a passage or duct 28 of relatively small section for evacuating dust collected from a grinding operation, the dust being drawn through the duct 28 into the exhaust chamber 23 by suction applied through a flexible exhaust tube 29 connected to the chamber 23, as shown in Fig. 3.

The dust thrown from the grinding wheel 17 consists largely of heavy metallic particles that travel at high velocity in a comparatively narrow path as they leave the wheel. The path of the dust particles in moving tangentially from the wheel passes across the forward face of the annular guard or hood 21 at a position only a short distance from the grinding zone on the wheel face, as indicated in Fig. 1. For drawing the concentrated stream of dust particles into the hood before the particles have time to spread into the atmosphere, a restricted dust receiving opening 30 is provided between the ends of a discontinuous annular cover plate or ring 31 which is slidably fitted in the annular opening 22 in the forward face of the hood 21. The dust receiving opening 30 is so proportioned and positioned that a strong suction is exerted through it upon the dust particles, in direction at right angles to their path of movement as they are thrown in front of the hood face, to divert them into the duct 28. For deflecting the heavier particles into the opening 30, there is provided a dust catching nozzle 33 which is also slidably mounted on the annular hood in manner to be positioned in the path of the dust particles and adjacent to the opening 30, as shown in Fig. 1.

Inasmuch as the grinding wheel must be used in various angular positions and must be moved over the work being ground, it is desirable that the dust catching nozzle 33 be made as small as possible to avoid interfering with the work being

ground. This makes it desirable and possible that the relatively small dust-collecting nozzle 33 be movable relative to the hood in order that it may be adjusted angularly to a position near the grinding zone best adapted to intercept the dust resulting from a particular grinding operation. Although the dust catching nozzle is small, the relatively strong current of air drawn in through it at high velocity draws the dust striking the nozzle into the suction opening 30 and prevents it from rebounding therefrom. Further, it is desirable that the nozzle be adapted to collect dust resulting from a grinding operation performed with the grinding wheel rotating in either direction.

As best shown in Fig. 2, the nozzle 33 is made adjustable circumferentially of the grinding wheel 17 by mounting it for sliding movement on a flange 34 at the outer forward peripheral edge of the wheel guard 21, a clamping thumb screw 35 being provided for clamping it in the adjusted position. As shown in Figs. 1 and 2, the nozzle 33 includes a central partition or dust deflecting or striking plate 36 disposed radially of the grinding wheel and provided at each side with a circumferentially extending wing or dust catcher, 37 and 38 respectively, the two wings being outwardly flared and adapted respectively for collecting dust thrown from the wheel when it is rotated in the one or the other direction.

The annular opening 22 in the forward face of the guard 21 is closed by the discontinuous annular cover plate 31 except for the portion constituting the restricted inlet opening 30 adjacent to the nozzle 33, the cover plate being retained in the forward face of the guard by snap rings 41 and 42 in such manner that it may be moved circumferentially thereof in order to adjust the angular position of the restricted opening. As shown in Fig. 1, the ends of the ring 31 are adapted to abut against the opposite sides of the central partition 36 of the nozzle structure 33 alternately in such manner that the restricted opening 30 may be provided adjacent to either of the wings 37 or 38, communication from the other wing into the angular chamber of the guard then being entirely cut off. Movement of the cover plate 31 to position the opening 30 may be effected by means of an actuating knob 43 extending outwardly therefrom.

After the nozzle 33 and the restriced opening 30 have been adjusted, dust thrown tangentially from the wheel 17 is drawn to the side by the strong inwardly flowing air current, or deflected by the nozzle into the opening, as indicated in Fig. 1, and then flows through the duct 28 in the hollow annular guard member 21 under the influence of the suction exerted through the exhaust tube 29. In order that the dust may take the most direct path from the nozzle 33 to the tube 29, the discharge chamber 23 is provided with a valve 45 which may be turned to either of two positions, as indicated in Fig. 1, to compel the dust to flow through either the upper or the lower part of the duct 28, as may be most conducive to direct discharge thereof. As shown, the valve member 45 is mounted on a valve shaft 46 disposed transversely of the casing 21 and that is provided at its forward or outer end with a control lever 47 by means of which it may be moved readily to either of its positions.

The dust hood embodying the invention may be used either with an ordinary grinding wheel of the emery or carborundum type, or with a diamond wheel. When a diamond wheel is used, it is desirable to clean and dampen its surface while grinding is in progress, and this may be accomplished by means of a wiper mechanism of the type shown in Fig. 3. As there shown, a wiper arm 51 is secured tothe top of the guard 21 and depends therefrom in position to carry a wiping pad 52 of felt or other similar material in contact with the grinding face of the diamond wheel. The wiper arm 51 is provided with a fluid conducting channel or passageway 53 through which water, oil, or other lubricating fluid may be supplied to the wiper pad 52 from a cup or container 54, mounted at the upper end of the arm.

In preparing the grinding mechanism for effecting a grinding operation, the cutter supporting unit 11 is adjusted to present the cutter 14 at a desired horizontal angle and the grinding wheel supporting unit 12 is likewise adjusted to properly position the face of the grinding wheel 17 at a desired vertical angle, the two adjustments resulting in establishing the predetermined grinding angle for operating upon the cutter. The machine may then be started and the wheel moved into contact with a blade of the cutter to be ground. Inasmuch as the main body portion of the guard 21 lies back of the grinding face of the wheel 17, one edge of the wheel and guard may be passed over the cutter 14 without interference, provided that the nozzle structure 33 is turned to a position in which it does not interfere with the work. When the grinding operation is started and dust is thrown tangentially from a point on the face of the wheel, as indicated in Fig. 1, the nozzle 33 is moved to such position on the periphery of the guard 21 that one of the wings 37 or 38, depending on the direction in which the wheel is rotating, is disposed to catch the stream of sparks and dust resulting from the grinding operation. The annular cover plate 31 is likewise adjusted to present the restricted suction opening 30 adjacent to the path of dust particles being intercepted by the wing of the nozzle. As the grinding operation progresses, and particularly when the change is made from rough grinding to finish grinding of the teeth of the cutter 14, the path taken by the dust particles may change, making it necessary to change the position of the inlet opening 30 and the nozzle 33. This may readily be done by merely loosening the clamp screw 35 and moving the nozzle structure 33 and the cover ring 31 to such position that the opening 30 is disposed to catch all of the dust being thrown from the wheel.

As indicated diagrammatically in Fig. 1, sparks and dust resulting from the grinding of a cutter blade, represented by the rectangle 55, (assuming the wheel to be rotating in clockwise direction as indicated by the arrow), pass in front of the suction opening 30 and enter beneath the wing 37 of the nozzle, the heavier particles impinging upon the partition member or striking plate 36 or the inner surface of the upper part of the nozzle structure and the lighter particles turning at right angles directly into the opening 30. The velocity of the heavier dust particles is largely absorbed upon striking the partition or nozzle surface, and as they rebound from it they also are drawn in through the restricted opening 30 by the strong suction of air, the dust particles being carried clockwise around the upper part of the hollow guard through the duct 28, as indicated, to the exhaust chamber 23 and thence into the exhaust tube 29.

If it is desired to operate the grinding wheel

17 in the opposite direction, the nozzle 33 is positioned accordingly, as indicated in Fig. 3, to present the other wing 38 and the restricted opening 39 in the direction counter-clockwise from the point at which the grinding occurs. Under this condition, the valve 45 is turned to its upper position in order that the draft of air entering the opening 39 may move in counter-clockwise direction through the lower part of the guard 21 in being exhausted to the exhaust tube 29.

As the grinding surface of the wheel 17 wears away from continued use, the guard may be moved back to avoid interfering with the work. This is readily accomplished by loosening the clamping bolt 26 and then sliding the guard inward upon the collar 25 the required distance, whereupon the bolt 26 may be tightened to clamp it in the new position.

Although the form of the invention shown in the drawings has been described in considerable detail to fully disclose the novel features thereof, it is to be understood that the improved dust-collecting hood may be used with grinding machines of types other than that shown and that various changes may be made in the shape, size, and arrangement of the parts without departing from the spirit and scope of the invention as defined in the subjoined claims.

We claim as our invention:

1. The combination with a grinding wheel adapted to be operated in either direction of rotation, of a dust receiving hood disposed to collect dust resulting from a grinding operation performed by said wheel, and a dust catching nozzle carried by said hood and angularly adjustable thereon to a position most advantageous for catching dust projected from any predetermined peripheral point on said wheel, said nozzle being operative when said wheel is rotating in either the one or the other direction.

2. In a grinding mechanism, the combination with a rotatably mounted grinding wheel, of a dust collecting hood disposed adjacent to said wheel, and a dust catching nozzle associated with said hood and movably mounted circumferentially of said wheel to permit adjustment thereof for catching dust projected from said wheel at any predetermined angular position thereon, said nozzle being adjustable in manner to adapt it for catching dust from said wheel when it is rotating in either the one or the other direction.

3. A dust collecting apparatus for a grinding wheel, comprising a dust hood having a relatively small dust catching nozzle adjustably mounted thereon for movement to a position most advantageous for receiving dust resulting from a grinding operation, a striking plate within said nozzle disposed to be impinged upon by dust particles entering said nozzle, and suction means inducing a strong current of air through said relatively small nozzle to draw into said hood dust particles rebounding from said striking plate.

4. In a grinding wheel guard, an annular hollow conduit member adapted to encircle a grinding wheel, a double nozzle carried by said annular member and presenting wings adapted to receive dust thrown from said wheel when it is rotating in either direction, means for adjustably positioning said double nozzle circumferentially of said annular member to present the one or the other wing thereof for receiving dust from said wheel, suction means for inducing a draft of air through said annular conduit member for removing dust collected by said nozzle, and means adjustably mounted on said annular member and adapted to present a restricted opening adjacent to the wing of said nozzle which is receiving dust from said wheel to effect a concentrated strong inflow of air through said nozzle into said annular conduit for sucking in the dust which enters said nozzle.

5. In a grinding apparatus having a diamond wheel, the combination with an annular wheel guard and dust hood structure disposed to encircle said wheel and means to exert suction through said hood to evacuate dust, of a wheel cleaning device carried by said guard, comprising a wheel wiping member and a supporting arm secured to said guard and disposed to hold said member in contact with said wheel, said supporting arm having a passageway for conducting lubricating fluid to said wiping member.

6. In a combined guard and dust collector for a grinding wheel of cup type, the combination with an annular hollow member encircling said cup grinding wheel and constituting a peripheral guard therefor, of means connected to said annular hollow member for exerting suction to evacuate dust from said grinding wheel, and a peripherally adjustable nozzle mounted on the forward face of said annular member and movable thereon to receive dust resulting from a grinding operation performed at any predetermined position circumferentially of said grinding wheel.

7. In a grinding mechanism particularly adapted for grinding milling cutters, the combination with a grinding wheel of cup shape mounted for rotary grinding action, of a combined wheel guard and dust collecting hood comprising an annular member of channel shape encircling said grinding wheel in manner to guard substantially its entire periphery and presenting an open forward face in a plane adjacent to the plane of the grinding face of said wheel, and a ring rotatably mounted in said open forward face of said annular member and presenting a restricted opening for receiving dust from said grinding wheel at any selected angular position about its circumference.

8. In a grinding mechanism particularly adapted for grinding cutters, the combination with a grinding wheel of cup shape mounted for rotary grinding action, of a combined wheel guard and dust collecting hood comprising an annular member of channel shape encircling said grinding wheel in manner to guard substantially its entire periphery and presenting an open forward face in a plane slightly inward from the plane of the grinding face of said wheel, a ring rotatably mounted in said open forward face of said annular member and presenting a restricted opening for receiving dust from said grinding wheel at any selected angular position about its circumference, a dust catching nozzle movably mounted on said annular member for angular adjustment and operative to catch dust from said wheel and direct it into said restricted opening, and suction means cooperating with said hood to provide an inward flow of air through said restricted opening in said ring for drawing in and evacuating said dust.

9. In a dust hood for a grinding wheel of cup shape, the combination with a hollow annular guard member encircling said wheel and presenting an annular opening in its forward face adjacent to the grinding face of said wheel, of a discontinuous annular cover plate rotatably mounted within said annular opening of said guard member and presenting a restricted inlet opening between the ends thereof, a dust catch-

ing member slidably mounted for angular adjustment on said annular guard and including a partition element disposed between the ends of said discontinuous annular cover plate and two dust catching wings extending in opposite directions respectively from said partition, said wings being disposed to catch dust from said wheel when it is rotated in opposite directions respectively and said cover plate being arranged to engage said partition with either of its ends, whereby the restricted inlet opening may be provided adjacent to either of said dust catching wings to adapt the dust hood for operation of said wheel in either direction selectively.

10. In a cutter grinder particularly adapted for grinding milling cutters, the combination with an adjustable cutter supporting element and an adjustable grinding wheel supporting element carrying a grinding wheel of cup shape, the arrangement being such that a cutter mounted on said cutter supporting element may be ground to any desired angle by said grinding wheel; of a combined guard and dust collecting hood comprising a hollow annular member disposed to encircle said grinding wheel to guard the periphery thereof and positioned with its forward face somewhat in rear of the grinding face of said wheel to avoid interference with work being ground, means exerting suction through said hollow guard member, and a dust catching nozzle of relatively small size adjustably mounted on the forward face of said guard member in manner to project beyond the grinding face of the wheel to catch dust resulting from a grinding operation and to guide said dust into the hollow interior of said guard, said nozzle being movable circumferentially of said guard to position it in manner to avoid interference with the work being ground and to most advantageously catch the dust being thrown from said wheel.

11. In a grinding mechanism, the combination with a grinding wheel mounted for rotary grinding action, of a combined wheel guard and dust collecting hood comprising an annular member of channel shape encircling said grinding wheel and presenting an open forward face adjacent to the grinding surface of said wheel, and a discontinuous ring rotatably mounted in said open forward face of said annular member and presenting between its ends a restricted opening for receiving dust from said grinding wheel at a selected angular position about its circumference.

12. In a grinding mechanism, the combination with a grinding wheel mounted for rotary grinding action, of a combined wheel guard and dust collecting hood comprising an annular member of channel shape encircling said grinding wheel and presenting an open forward face adjacent to the grinding surface of said wheel, a discontinuous ring rotatably mounted in said open forward face of said annular member and presenting between its ends a restricted opening for receiving dust from said grinding wheel at any selected angular position about its circumference, and a dust catching nozzle movably mounted on said annular member for angular adjustment thereon and operative to catch dust from said wheel and to direct it into said restricted opening.

13. In a combined guard and dust collector for a grinding wheel, the combination with an annular hollow member encircling said grinding wheel, of means connected to said annular hollow member for exerting suction to evacuate dust from said grinding wheel, and a nozzle movably mounted on said annular member for peripheral adjustment into a location adapted to receive and guide into said annular hollow member dust resulting from a grinding operation performed at any predetermined position circumferentially of said grinding wheel.

14. In a combined guard and dust collector for a grinding wheel, the combination with an annular hollow member encircling said grinding wheel and having an outlet passageway extending radially from one side thereof, of means connected to said passage-way for exerting suction to evacuate dust from said grinding wheel, a peripherally adjustable nozzle mounted on said annular member and adapted for movement to a location to receive dust resulting from a grinding operation performed at any predetermined circumferential position, and a valve associated with said suction passage-way and operative to restrict the flow of air and dust to movement in one or the other direction around said annular hollow member from said nozzle to said outlet passageway.

15. In a grinding apparatus, the combination with a rotatably mounted grinding wheel, of a wheel guard structure including an inner element encircling said grinding wheel closely adjacent to the periphery thereof and constituting a guard therefor, an outer element spaced from said inner element in manner to define therebetween a suction passage-way for exhausting dust, and an adjustable closure element interposed between said inner element and said outer element in manner to present therebetween a circumferentially restricted inlet opening for receiving grinding dust.

16. In a grinding mechanism including a grinding wheel mounted for rotary grinding action, a combined wheel guard and dust collecting hood comprising an annular member of channel shape disposed to encircle said grinding wheel and presenting an open face adjacent to the grinding surface of said wheel, a discontinuous ring mounted in said open face of said channel shaped annular member and presenting between its ends a restricted opening, and a striking plate disposed between the ends of said ring in position to be impinged upon by particles thrown from said grinding wheel, whereby said particles may be arrested by said striking plate and then drawn into said hood through said restricted opening by suction exerted through said annular member.

17. In a grinding mechanism including a grinding wheel mounted for rotary grinding action, a combined wheel guard and dust collecting hood comprising an annular member of channel shape disposed to encircle said grinding wheel and presenting an open face adjacent to the grinding surface of said wheel, a discontinuous ring rotatably mounted in said open face of said channel shaped annular member and presenting between its ends a restricted opening, and a striking plate disposed between the ends of said ring and rotatably therewith for movement to any angular position about said annular member into the path of particles thrown from said grinding wheel, whereby said particles may be arrested by said striking plate and then drawn into said hood through said restricted opening by suction exerted through said annular member.

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