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2,231,900

ABRADING DEVICE

Original Filed Aug. 30, 1938

Fig. 1.

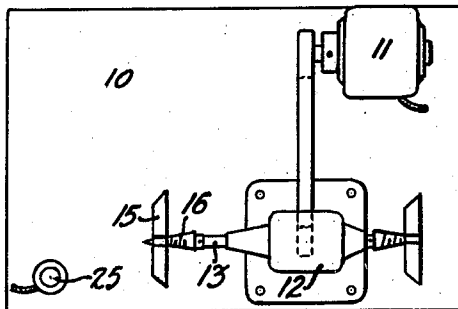


Fig. 4.

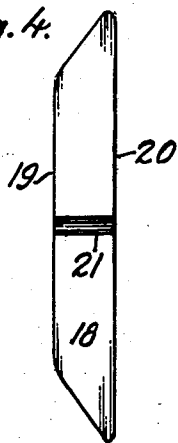


Fig. 2.

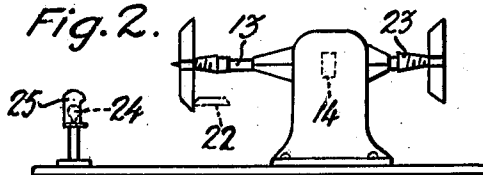


Fig. 3.

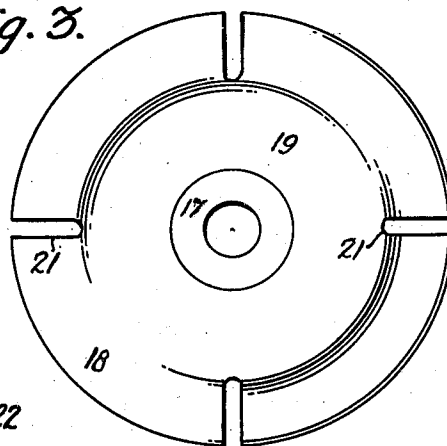
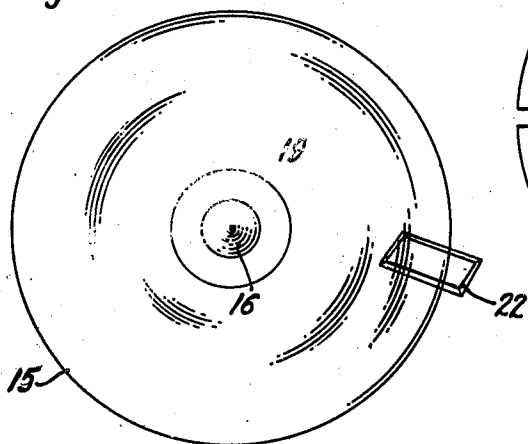


Fig. 5.



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ABRADING DEVICE

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Application August 30, 1938, Serial No. 227,450

Renewed August 8, 1939

7 Claims. (Cl. 51-72)

This invention relates to abrading devices and has particular reference to abrading wheels or disc members therefor.

One of the objects of the invention is the provision of members of the class described, which may be constructed in standard grades or sizes, small or relatively large, for use in instances in which the abrading, buffing or polishing operations are performed on a manually held work piece, or on work which may be presented to the wheel members by feeding mechanism.

Prior to this invention, difficulty has been experienced in securing desirable positioning of the work piece against the wheel member, during its rotation, because that part or area of the work contacting with the wheel has not been visible to the operator, and another of the objects of this invention is to render such area constantly substantially visible.

In accordance with this invention, to secure yet another of its objects, the wheel or rotary member is formed with one or more indentations or perforations, which provide sight openings, and these are so arranged that, the rotation being sufficiently rapid, and with the work piece and view point of the observer on opposite sides of the rotating member, said piece is rendered visible along the whole of the area mentioned. Since the openings follow each other on the same path, in rapid succession, they produce to the eye of the observer all the appearances of the openings together, or one continuous opening.

The particular embodiment of the invention selected for illustration shows sight openings in certain positions on an annular path. These openings have also the advantage of rendering the work piece more easily controlled or guided, but other positions and sizes of openings may be utilized, as hereinafter further referred to.

Still another particular advantage secured is that an unskilled operator, by virtue of the visibility described, may at first attain desirable results, without previously performing practice work, thereby securing economy of material and operation.

The stated objects and advantages are attained by the disclosed operation and by the mechanism and arrangements illustrated in the accompanying drawing, in which:

Fig. 1 is a top plan view of abrading mechanism embodying the present improvements;

Fig. 2 is a side elevation thereof;

Fig. 3 is a face view, on an enlarged scale, of an abrading wheel;

Fig. 4, an edge view of the wheel; and
Fig. 5, a face view of the wheel as seen during rotation.

On a base 10, referring particularly to the drawing, is mounted an electric motor 11, which receives current from any ordinary source, as well known in the art, and coupled with this motor by a belt, as shown, is an abrading head 12, in which are provided bearings for a shaft 13.

The relation between the diameter of the pulley of said motor and that of a pulley 14 of the shaft 13 is such as to cause rotation of the shaft to be sufficiently rapid for proper operation of an abrading wheel 15. Said wheel is mounted on a tapered spindle 16, the latter being rigid with the left hand end of the shaft, which may also have, on its opposite end, a like spindle 23.

Other wheel mountings, differing from the tapered spindle, may be used, and said wheel is also adapted for operation on articles or surfaces other than those of the work piece shown, it being understood for instance that said wheel is suitable for such uses as the sandpapering or polishing of floors, furniture or woodwork, as well as for the finishing of other and more extended surfaces, the material of the wheel in such cases being appropriate.

The wheel or disc 15 is provided with a fixed lead or soft metal bushing 17, by which mounting on the spindle 16 is secured, and in the present instance said wheel is marginally beveled and reduced on one side, this being as shown at 18, to present certain opposed working faces 19, 20.

Marginal slots, each alike and numbered 21, are incorporated in said wheel. Said slots, while radially disposed in the illustration and opening at their outer ends onto the periphery of the wheel, may be otherwise positioned, since said ends may not be formed as peripheral edge openings. In some cases, said slots may be disposed nearer to the center of the wheel. Slots of this type may be of different length; they may be disposed obliquely, for example, and openings having boundary faces differing from those of said slots may be formed. One slot or opening of suitable dimensions may be sufficient for a wheel.

A selected type of work piece 22, in the form of a marginally beveled sheet metal protector, sheath, cap or facing, is herein shown, and in Fig. 5, where the wheel 15 is represented as rotating, said piece is disposed on the distant side 20. As hereinbefore indicated, during the rotary movement, the openings 21, as separate features, become invisible. Said openings then appear as

one continuous opening, thereby exposing the work piece 22, along their path, to the view of the operator or observer.

The operator, referring to the showings of Figs. 1 and 2, views the arrangement from the left hand side, and these views are the same as that seen in the enlarged showing of said Fig. 5, where the work piece is in contact with the rear side 20 of the wheel.

Under ordinary favorable light conditions, the work piece 22 is seen sufficiently clear for desirable operation, but under certain other light conditions, such as frequently occur in practice, a source of light 24 may be provided.

The source of light 24, as herein illustrated, has thereon an opaque partial cover or cap 25, and in this cover, the inner face of which also acts as a reflector, is a suitable opening, the latter being directed towards the wheel or disc 15.

What I claim is:

1. A method of grinding work pieces which consists in revolving a perforated wheel constructed of grinding material, placing a work piece against one side of the wheel, and illuminating said piece through the perforations.

2. A method of grinding work pieces, which consists in revolving a grinding wheel having extending therethrough from side to side thereof openings, placing a work piece against one side of the wheel, and viewing the work piece through said openings.

3. Method for the grinding and polishing of objects which comprises rotating a grinding wheel, having on a grinding surface thereof at least one sight opening, with a speed such that an object to be ground and positioned along the path of travel of said sight opening be substantially continuously visible therethrough, and holding such object in grinding contact with said grinding surface on said path.

4. Method for the grinding and polishing of objects which comprises rotating a grinding

wheel, having at least one sight opening extending between and through two surfaces of said wheel and emerging at least on one side on a grinding surface thereof, with a speed such that an object to be ground and positioned along the path of travel of said sight opening be substantially continuously visible therethrough, and holding an object in grinding contact with said grinding surface on said path.

5. Method for the grinding and polishing of objects which comprises rotating a grinding wheel, having a multiple number of sight openings, each extending between and through two surfaces of said wheel and emerging at least on one side on a grinding surface thereof, with a speed such that an object to be ground is substantially continuously visible through said wheel when positioned along the path of travel of said sight openings, and holding an object in grinding contact with said grinding surface on said path.

6. Method for the grinding and polishing of objects which comprises rotating a grinding wheel having a tapered edge and a multiple number of sight openings therethrough and emerging at least on one side on a grinding surface of said wheel, with a speed such that an object to be ground is substantially continuously visible through said wheel when positioned along the path of travel of said sight openings, and holding an object in grinding contact with said grinding surface on said path.

7. Method for the grinding and polishing of metal objects which comprises rotating a grinding wheel, having a grinding surface on at least one of its sides and a multiple number of sight openings extending through said wheel and from side to side thereof, with a speed such that an object to be ground is substantially continuously visible through said wheel when positioned along the path of travel of said sight openings, and holding a metal object in grinding contact with said grinding surface on said path.

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