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A. J. YUERHS.

SEPARATOR FOR GRINDING MACHINES.

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Fig. 1.

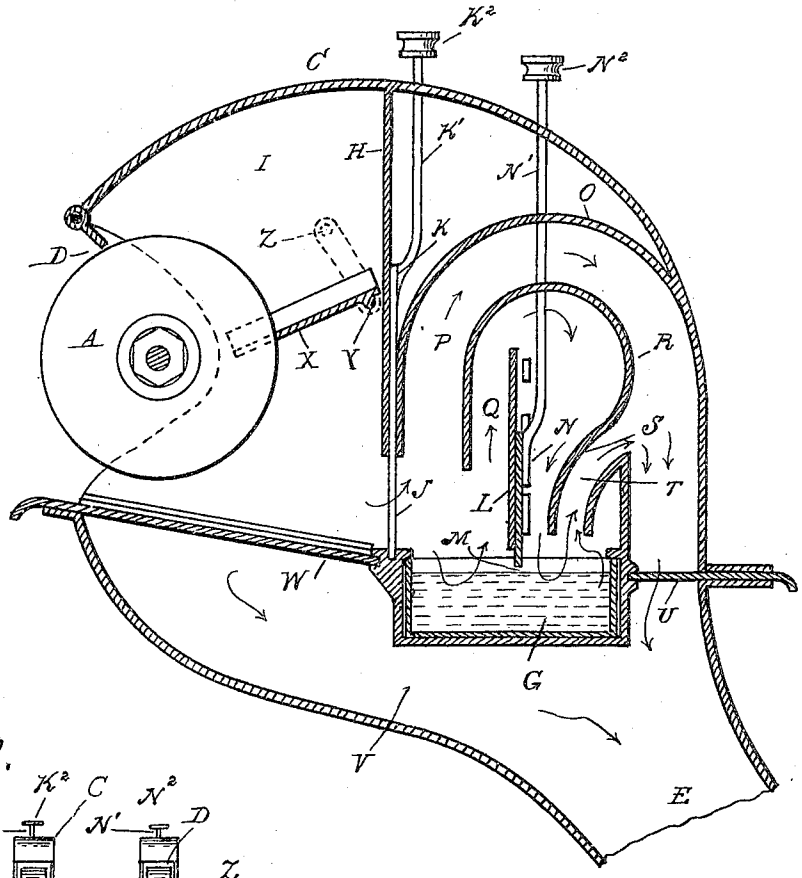
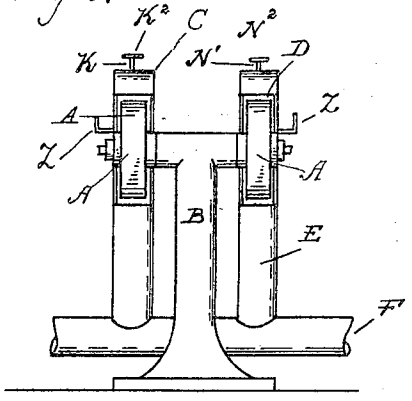


Fig 2.



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SEPARATOR FOR GRINDING-MACHINES.

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Application filed October 6, 1904. Serial No. 227,366.

To all whom it may concern:

Be it known that I, ALBERT J. YUERHS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Separators for Grinding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to grinding-machines, and has more particular reference to a means for collecting the valuable portions of the grindings and separating the same from the dust and worthless product.

The invention consists in the peculiar construction, arrangement, and combination of parts, as hereinafter set forth.

In the drawings, Figure 1 is a section through the separator. Fig. 2 is an elevation of the grinder to which the separator is applied.

A is a grinding-wheel of any suitable form, which is illustrated in Fig. 2 as mounted upon an arbor journaled in a standard B, a wheel being arranged at each end of this arbor.

C is a dust-collecting hood which partially incloses the grinder-wheels A and has a cut-away segment D for providing an access to the wheel in grinding. The hood C is connected by the conduit E with a main exhaust-conduit F, connected to a suitable suction pump or fan. (Not shown.)

It is the primary object of the invention to provide means for collecting the brass-grindings and separating the same from the emery-dust, which latter is carried into the exhaust-conduit.

It is a further object to provide means by which the device may be adjusted for wheels of varying diameters and which will permit of quick readjustment as the grinder-wheel wears away.

The collector comprises, essentially, a receptacle, such as G, which is arranged within the hood C and in the path of the air-current leading from the grinder to the conduit E. This receptacle contains water and is in such a position that the comparatively heavy particles, such as the brass-grindings, will be thrown into the water and will settle to the bottom of the receptacle, whereas the lighter particles, such as the emery-dust, will be carried through a circuitous passage-way around the receptacle and into the conduit E. It is obvious that different-sized wheels will impart different degrees of velocity to the particles thrown off therefrom, and it is therefore necessary to provide adjustments for regulating the restriction of the ports through which the dust-laden air passes, so as to prevent, on the one hand, the depositing of the dust with the more valuable product and, on the other hand, the carrying away of the valuable product with the dust.

As shown, the hood C is divided by the partition H into a compartment I, in which the grinding-wheel is located, and another compartment in rear thereof at the bottom of which the receptacle G is located. Between the compartments is a passage-way J, which may be variably restricted by a slide K, operated by a shank K′, passing outward through the hood and having a suitable operating-handle K^2.

L is a partition arranged centrally above the receptacle G and in the direct path of the air-current from the compartment I, passing through the passage-way J. This partition L terminates a short distance above the receptacle G to provide a throat or restricted passage-way M, and the size of this throat may be adjusted by the slide N, connected by a shank N′, passing outward through the hood and having an adjusting-handle N^2.

With the construction as thus far described the air-current, together with the dust and grindings carried thereby, is first directed from the wheel toward the passage-way J and the receptacle G and partition L, which are in direct line therewith. As a consequence, the momentum of the heavier particles will carry, without either, into the water in the receptacle G or against the partition L, from which they will drop into the water. The air-current will, however, be deflected by the partition L in an upward direction, passing around said partition and downward around the receptacle G into the conduit E. The dust and lighter particles will be carried by this current, and to facilitate their passage a segmental wall O is preferably arranged above the partition L, around which the air-current will pass without permitting any of the dust to lodge on the water. The valuable product will contain a certain amount of fine particles, which are too light to be deflected by the partition L into the water, but will be carried upward with the air-current, and in order to separate and collect these the air passage-way about the partition L is divided into two separate passages P and Q. The passage-way Q is nearest the partition L, and consequently will receive all of the heavier particles which

are carried by the air-current, while the passage P will receive the air carrying the lighter particles. The partition R, which separates these two passages after circling over the top of the partition L, is preferably given a slight return-bend, as at S, and then deflects in a downward direction substantially perpendicular to the surface of the water in the receptacle G. Thus fine particles of brass, which will be carried upward by the air-current through the passage Q, will be thrown downward by the wall R, so as to collect in the water in the receptacle G. The air accompanying these particles will pass under the partition R and upward again through a passage T, which communicates with the passage P leading to the conduit E.

In order that the air-suction may be varied according to the conditions, an adjustable slide or valve U is arranged for variably restricting the passage P leading to the conduit E. A passage V is also arranged upon the forward side of the receptacle G and is normally closed by a slide W, extending to said receptacle. When, however, it is not desired to save any of the grindings, the slide W may be drawn so as to provide a direct passage from the grinder to the conduit E, through which all the dust-laden air will pass, carrying with it all of the particles, large and small.

To prevent a circular air-current being formed around the wheel, which would carry the dust and grindings with it, a deflector X is pivotally connected at Y within the compartment I and is provided with a handle Z, arranged without the casing. Thus by adjusting the handle Z the deflector may be moved into close proximity to the wheel, and may be readjusted from time to time as the wheel wears away.

To permit of removing the collected grindings, the receptacle G is preferably arranged for insertion through the aperture in the side of the hood.

What I claim as my invention is—

1. The combination with a grinding-wheel, of a suction-hood partially surrounding said wheel, a collector arranged within the hood in the path of the suction-current and a cut-out for said collector.

2. The combination with a grinding-wheel, of a suction-hood therefor, a collector within said hood in the path of the suction-current, a deflector for causing said current to pass in a circuitous course around said collector and a cut-out for said collector.

3. The combination with a grinding-wheel, of a suction-hood therefor, a receptable within said hood in the path of the suction-current and containing a liquid for collecting particles from said current, and a by-pass around said collector adapted to be closed or opened.

4. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-holding receptacle in the path of the suction-current and a deflector for changing the direction of said current in passing around said receptacle.

5. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-containing receptacle in the path of the suction-current, a circuitous passage-way for the current around said receptacle and means for variably restricting said passage-way.

6. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-containing receptacle within said hood in the path of the suction-current and a deflector substantially perpendicular to the surface of the liquid for compelling a change in direction of said current around said receptacle.

7. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-containing receptacle in the path of the suction-current within said hood, a deflector above said receptacle and an adjustable downward extension of said deflector adapted to be projected within said receptacle.

8. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-containing receptacle within said hood in the path of the suction-current, a deflector for changing the direction of the current in passing around said receptacle and a second deflector for redirecting a portion of said current toward said receptacle.

9. The combination with a grinding-wheel, of a suction-hood therefor and a liquid-containing receptacle within said hood and spaced therefrom in the path of the suction-current, adapted to collect grindings from said current, said receptacle being removable through the side of said hood, and adjustable shutters for said hood whereby the suction-current may be directed toward said receptacle or directed therearound.

10. The combination with a grinding-wheel, of a suction-hood therefor, a liquid-containing receptacle within said hood in the path of the suction-current, a deflector arranged substantially perpendicular to the surface of liquid within said receptacle and means for adjusting said deflector toward or from the surface of the liquid.

11. The combination with a grinding-wheel, of a suction-hood therefor, and a liquid-containing receptacle in the path of the suction-current within said hood and spaced therefrom, and adjustable shutters within said hood, whereby said current may be directed toward or around said receptacle, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT J. YUERHS.

Witnesses:
JOHN P. GLENDON,
M. MCARTHUR.