

(Model.)

G. HART.
Grinding and Polishing Wheel.

No. 228,257.

Patented June 1, 1880.

Fig-1.

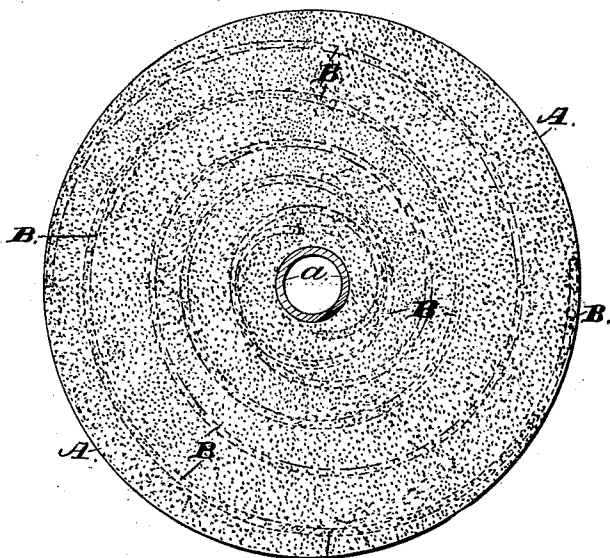


Fig-2.

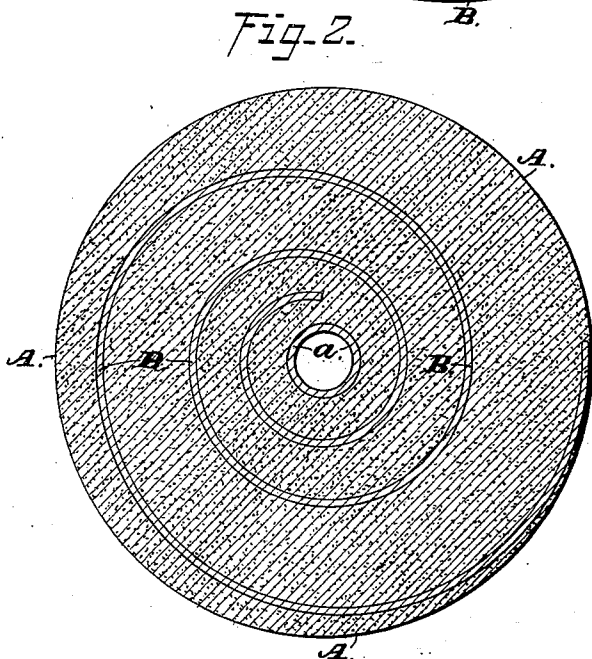
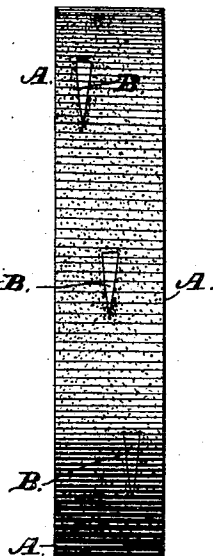


Fig-3.



WITNESSES=

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Att'y.

UNITED STATES PATENT OFFICE.

GILBERT HART, OF DETROIT, MICHIGAN.

GRINDING AND POLISHING WHEELS.

SPECIFICATION forming part of Letters Patent No. 228,257, dated June 1, 1880.

Application filed May 4, 1880. (Model.)

To all whom it may concern:

Be it known that I, GILBERT HART, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Grinding and Polishing Wheels, of which the following is a specification.

This invention relates to an improvement in that class of composition grinding and polishing wheels in which the wheel is re-enforced against centrifugal strain by means of braces embedded in the composition, its object being to provide a wheel of this class in which the brace or braces shall interfere only in a minimum degree with the working-surface, while bracing the wheel from center to periphery.

To this end it consists in a grinding or polishing wheel molded from any well-known or suitable abrasive composition for such purposes, and having embedded within it one or more convolute strips or wires of a metal which will wear away as easily or more easily than the composition, one end of each of said strips or wires terminating near the center of the wheel and the other extending toward its periphery, the successive convolutions surrounding the center. The strips or wires may have any desired number of convolutions, and when more than one is used their ends are preferably arranged to terminate on different radii of the wheel at points dividing the said wheel equally, and not in a transverse line.

It will be observed that each of the braces, while re-enforcing the wheel in all directions, interferes with the working-surface, as the wheel is worn away, only at a single point, which is continually changing in position as the wheel decreases in size, so that a practically uniform action of said working-surface is secured.

It has been customary to brace and strengthen this class of grinding and polishing wheels by embedding within the composition, at the time of molding, one or more plates or disks arranged concentrically with the wheel, one or more disks of wire-cloth, or a series of radial bars; but in these modes of bracing the peripheral working-surface of the wheel is broken or interrupted almost or quite continuously around, and an objectionable quantity of non-

abrasive material is required to be introduced into the wheel.

Wheels have also been formed from compositions having mixed therewith hard abrading substances, such as pulverized glass, fine granulated iron, or steel filings and borings, and steel wires arranged radially; but in these wheels the said hard abrading substances form the effective working-surfaces of the wheel, and are simply held in position by the plastic portion of the composition.

In the accompanying drawings, Figure 1 represents a side view of a wheel constructed according to my invention, with two braces, the positions of which are shown in dotted lines. Fig. 2 represents a section of a wheel with one brace. Fig. 3 is a peripheral view of a wheel having eight braces flush with the periphery, as when the wheel is partially worn away.

The letter A indicates the composition wheel, and *a* its central collar, from a point near which each of the braces B extends in convolutions, terminating preferably at or near the periphery, as shown. These braces are preferably made of copper wire or strips of sheet-copper; but any other metal may be used which, from its nature, will wear away by friction as readily or more readily than the composition of the wheel in which it is embedded and through the periphery of which it projects.

In manufacturing a wheel with one brace, I place in the ordinary mold enough of the composition in a plastic state, as usual, to form half the thickness of the wheel, and then lay upon it one of the braces, pressing the same partially into the composition, then fill the mold with composition to complete the wheel, pressing the composition well into the mold, in order that it may snugly come in contact with the brace.

When more than one brace is to be used, I place in the mold successively such quantities of composition as will form equal portions of the thickness of the wheel, placing between the braces, as above described, but arranging their outer terminals so that they shall terminate on different radii of the wheel at points indicating equal divisions of a circle.

What I claim is—

A grinding or polishing wheel molded from any well-known or suitable composition for such purposes, having embedded within it one or more convolute strips or wires of a metal
5 which will wear away as easily or more easily than the composition, one end of each of said strips terminating near the center of the wheel and the other extending toward its periphery,

the successive convolutions surrounding the center of said wheel, substantially as described. 10

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

Witnesses:

GILBERT HART.

ELLWOOD T. HANCE,
LELAND B. CASE.