T. Harding,

Emery Wheel.

No. 111,057. Patented Jan. 17, 1871.

Fig: 1.

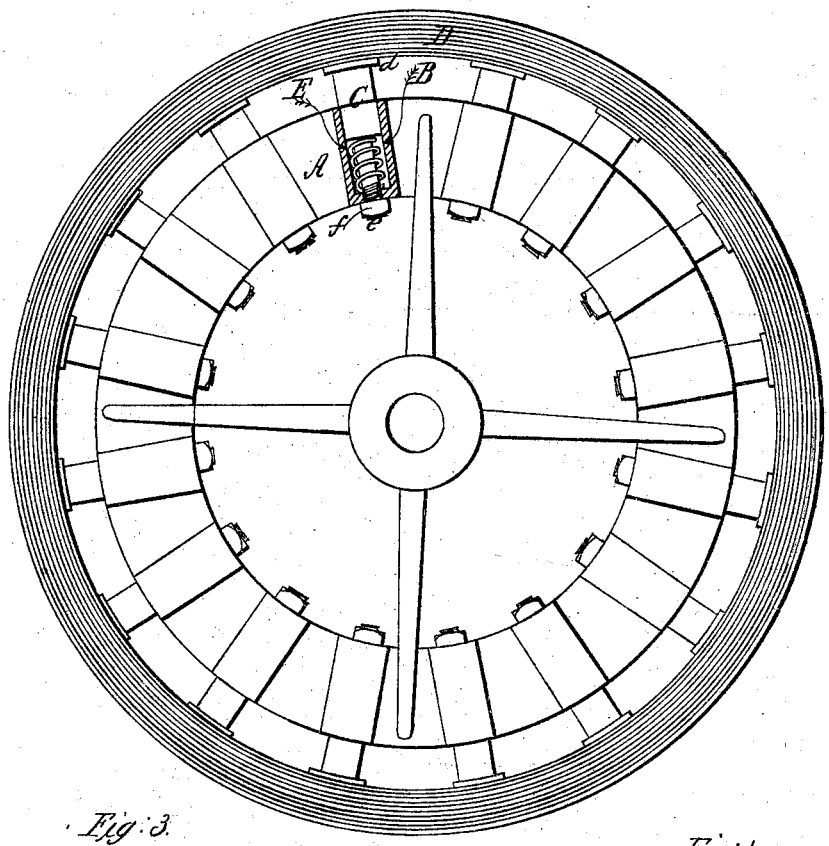


Fig: 3.

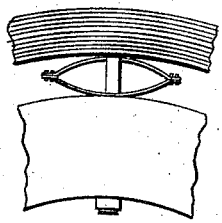


Fig: 2.

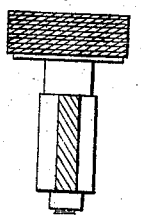
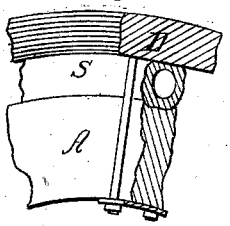


Fig: 4.



Witnesses;
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THOMAS HARDING, OF LA FAYETTE, INDIANA

Letters Patent No. 111,057, dated January 17, 1871.

IMPROVEMENT IN EMERY-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, THOMAS HARDING, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented a new and useful Improvement in Polishing and Grinding-Wheels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a side elevation of my wheel.

Figure 2 is a cross-section on line *x x* of fig. 1.

Figures 3 and 4 exhibit modifications in the construction of the same.

My invention relates to elastic wheels used for grinding and polishing metals; and

It consists in adjustable elastic supports placed between a rigid hub and a slightly flexible rim to hold the grinding or polishing material, and also in a method of constructing said rim to adapt it to supports not placed in near contact with each other.

I am aware that polishing-wheels have been heretofore made with elastic surfaces, the elasticity being produced by the use of bands of India rubber, felt, sea-horse hide, &c., and by dividing the rim of the wheel into radial segments, with a coiled spring beneath each segment.

My wheel is unlike either of these, which are subject to the following objections:

First, elastic rubber bands are not durable, and, at considerable expense, they require frequent renewal.

Second, the bands of felt, sea-horse hide, &c., cannot be joined without imparting a different degree of elasticity at the point of fastening.

Third, the radial segments impart a constantly varying degree of elasticity.

That others may fully understand my invention, I will particularly describe it.

The wheel A is constructed of metal, with a proper hub to receive a mandrel.

The periphery of the wheel A is pierced with chambers B, to receive the plungers C, which support the grinding-rim D.

Each plunger C is provided with a flange-head, *d*, and a screw-bolt, *e*, which extends through an orifice in the bottom of the chamber B, and is provided with a screw-nut, *f*, to prevent it from withdrawing therefrom.

Within the chamber B and beneath the plunger C, I place a spring, E, either of coiled wire or gum, which is more or less compressed by the action of the bolt *e* and *f*, and therefore affords a ready means of adjusting and regulating the position of the flange-head *d*, and thereby adjust the balance of the rim D.

The rim D is composed of successive layers of leather or other suitable material, glued, cemented, or otherwise fastened together, until the required thickness is obtained.

The flanges *d* are secured to the inner surface of this rim by screws or other devices, and the nuts *f* being then relaxed, the rim is distended by the action of the springs E, and becomes elastic by the same means.

The rim D is made with thickness sufficient to impart the necessary stiffness to support it between the plungers C, which are separated some little distance from each other.

The flexure of the rim will therefore move around the wheel in the form of an undulation or wave, as the object being ground is pressed against it, and the transference of pressure from one point of support to another taking place in a perfectly graduated and uniform manner.

The periphery of the rim D is made truly concentric to the axis of the hub of the wheel A, by greater or lesser compression of the springs E, as may be required.

In fig. 3 is represented a modified construction, consisting in the employment of an elliptic spring, instead of a coiled spring, and dispensing with the chambers B.

In fig. 4 the required tension and elasticity are secured by means of the tubular spring S, laid between the rim D and wheel or hub A, and compressed by means of a screw stirrup, T.

Having described my invention,

What I claim as new is—

1. A polishing-wheel, constructed with a slightly-flexible rim, connected to a rigid hub, by means of elastic supports made adjustable, so as to center or balance said rim, substantially as set forth.

2. The chambered wheel A, in combination with the plungers C, screw-bolts *e*, and elastic springs E, constructed substantially as described, to support the rim D, as set forth.

3. The rim D, constructed of successive layers of leather or other suitable material, glued, cemented, or otherwise fastened together, in combination with elastic supports C, resting upon a rigid wheel, as and for the purpose set forth.

THOMAS HARDING.

Witnesses:

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