(No Model.)

# E. I. HELLER.

## ARTIFICIAL MILLSTONE OR BURR.

No. 344,902. Patented July 6, 1886.

*Fig. 1.*

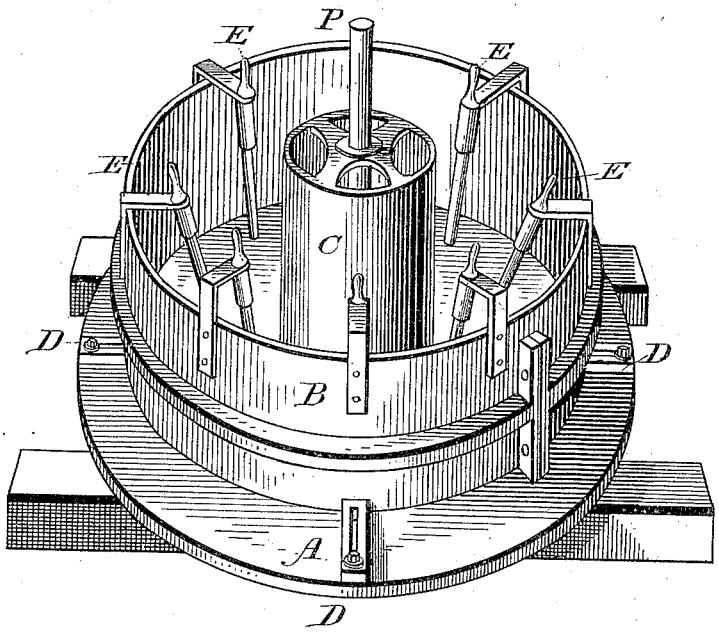
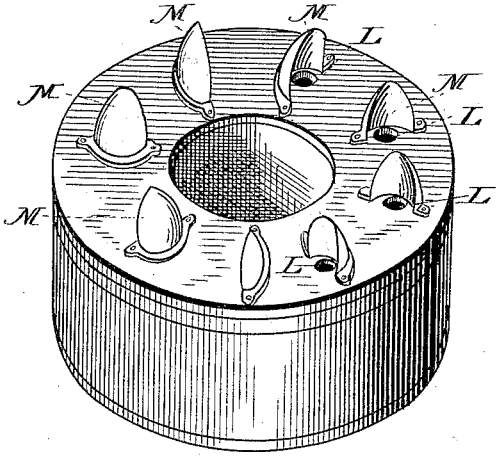



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

EMANUEL I. HELLER, OF IGLAU, AUSTRIA-HUNGARY.

## ARTIFICIAL MILLSTONE OR BURR.

SPECIFICATION forming part of Letters Patent No. 344,902, dated July 6, 1886.

Application filed January 30, 1886. Serial No. 190,267. (No model.)

*To all whom it may concern:*

Be it known that I, EMANUEL I. HELLER, a subject of the Emperor of Austria-Hungary, residing at Iglau, Austria-Hungary, have invented a new and useful Improvement in Artificial Millstones or Burrs, of which the following is a specification.

These artificial millstones consist of, first, sharp, broken, and assorted grains of quartz, quartz-crystal, or Naxos-corundum emery of various grades and proportions of weight, according as the product is to be fine, coarse, hard, soft, medium, or superfine; second, magnesite or dolomite, or any other known solid mineral uniting material; third, dissolved magnesium chloride or soluble glass, or a similar known liquid chemical uniting agent. These three main constituents can be united in various quantities, according as the mass is desired to be fine, coarse, hard, soft, dense, or porous, and by using quartz or quartz-crystal, or Naxos-corundum emery, three different grades of stone are produced. These ingredients are so mixed that each grain comes in contact with magnesite or dolomite, or other known suitable uniting agent, and with magnesium, chloride, or soluble glass or other known and suitable liquid uniting agent, and in this way the combination sets. By the suitable addition of the said liquid uniting agent—such as magnesium chloride, soluble glass, &c—which, according to the weather, whether dry or moist, amounts to twelve to thirty per cent. of the whole weight of the said mineral grains and pulverized uniting agent, the whole of the uniting agent remains in such contact with the grains that the spaces formed between the sharp-edged grains—that is, the pores—shall not be filled up with cement, but remain open when the millstones are formed by stamping or pressing. By this process I obtain a porous stone, whereby I entirely obviate dressing the millstones, as the edges of the single grains sharpen themselves by reason of the porosity of the stone when they wear off. The millstones are formed according to this process, and in the following manner, using the mold or apparatus shown in the drawings, in which—

Figure 1 is a perspective view of the mold, and Fig. 2 the finished stone, with exhaust channels and sails.

For millstones without exhaust-pipes, the above-described mass is introduced into the mold shown in the drawings, A B C P, and afterward stamped or pressed.

For millstones with automatic ventilation, the cores E are set up in the mold A B C P. These cores can be of any desired number or shape, straight, crooked, worm-shaped, &c., and in any position, and may be made of wood, iron, porcelain, &c.

Instead of the cores E, pipes of various materials can be made, which are to remain in the stone, or the automatic exhaust-pipes can be cut out of the finished stone in various shapes.

After molding the millstone the mass remains in the said mold till it is solid—that is, as hard as stone, and can be removed from the mold. Above each of the pipes is fastened a wind-sail, and according to the rotation of the stone will either introduce cool air from the outside to the grinding-surface or remove the warm air arising from the friction of the stone.

A is the molding-plate. B designates the stone-drum; C, the perforated drum; D, the adjusting-support; E, exhaust-channel core or mold; L, the exhaust-channel; M, the wind-sail; P, the central shaft.

I am aware that it is not new to make artificial millstones by mixing quartz, quartz-crystal, or Naxos-corundum emery with magnesite, or dolomite, or other known solid mineral uniting agent and a solution of magnesium chloride or soluble glass or other liquid chemical uniting agent, and then stamping the mass in a mold; and I therefore do not claim the same; but

I claim—

1. In combination with the molds A B, the cores E, for the purpose of producing exhaust-passages in an artificial millstone, substantially as set forth.

2. The wind-sails M, in combination with the millstones having exhaust-channels, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EM. IG. HELLER.

Witnesses:
CARL SARRER,
RUDOLF FILIP.