

O. SCHMIDT.
ARTIFICIAL GRINDSTONE.
APPLICATION FILED MAY 10, 1912.

1,044,261.

Patented Nov. 12, 1912.

Fig: 1.

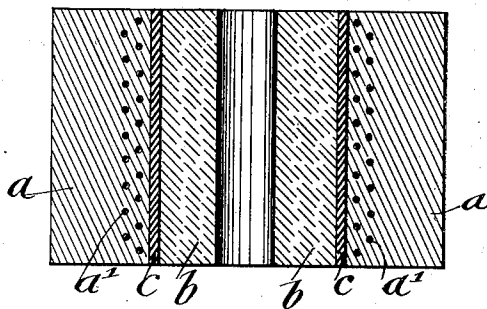
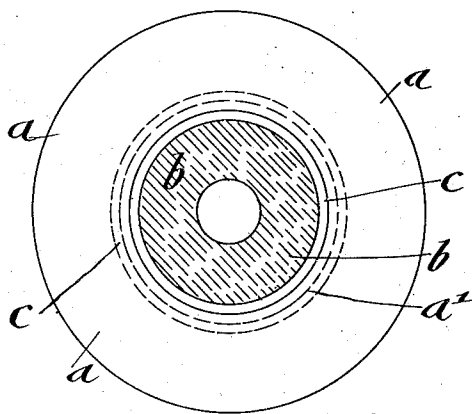


Fig: 2.



Witnesses:
John Muntagh
M. A. D. iton

Inventor
Otto Schmidt
By his Attorneys
Loewen & Loewen

UNITED STATES PATENT OFFICE.

OTTO SCHMIDT, OF DRESDEN, GERMANY, ASSIGNOR TO GESELLSCHAFT OTTO SCHMIDT'S
PATENT HERCULESSTEINE M. B. H., OF DRESDEN, GERMANY, A CORPORATION OF
GERMANY.

ARTIFICIAL GRINDSTONE.

1,044,261.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed May 10, 1912. Serial No. 696,498.

To all whom it may concern:

Be it known that I, OTTO SCHMIDT, a citizen of the German Empire, and residing in Dresden, in the Kingdom of Saxony and Empire of Germany, have invented certain new and useful Improvements in Artificial Grindstones, of which the following is a specification.

In the manufacture of wood-pulp by mechanical means, grind-stones are used which heretofore were made of natural stone. Gradually, however, as the requirements relating to the resistance of these stones in the grinding of wood were increased more and more, and as the modern wood-pulp factories commenced the use of grinding machines which required considerably greater power, a highly increased pressure and augmented velocities, the grind-stones which were made from the natural stone did not meet these requirements, and it was therefore necessary to make grind-stones from artificial material. Though these artificial grind-stones responded in a greater degree to the present requirements as to the capability of resistance than the natural stone, they failed in some respects to fully come up to the requirements, and it was therefore necessary to improve the same still further. The object of this invention is to supply an artificial grind-stone which has all the properties of the natural stone and in which the exterior portion or ring is made of a mixture of sand and cement and an interior portion is made of ring-shaped core, said exterior portion and core being connected by a suitable binding substance interposed between the same.

In the accompanying drawings, Figure 1 represents a vertical transverse section through the improved grind-stone, and Fig. 2 a plan-view of Fig. 1.

Similar letters of reference indicate the same parts in the different figures of the drawing.

Referring to the drawing, *a* represents a cylindrical ring which is formed of a mixture of sand and a binding material, such as

cement which corresponds in hardness to the grain of natural sandstone. The grinding ring *a* is reinforced by metallic rings *a'* near its inner portion. The interior ring-shaped space inclosed by the cylindrical grinding ring *a* is filled up after it has properly hardened with a ring-shaped core *b* of concrete which serves for the reception of the plaster by which the stone is mounted on the shaft, that imparts the rotatory motion to the grind-stone. Experience with artificial grind-stones has shown, however, that by the introduction of the concrete mass into the grinding ring and the tamping of this mass into the same, tensions are produced in the ring which exert a weakening action on the grinding ring and tend to induce cracks or fissures in the same. The further objection is that the hardening of the concrete which has been tamped into the grinding ring takes up a considerable length of time so that the artificial grind-stone cannot be placed into use. Both these objections are overcome by making the ring-shaped core first separately from concrete and the inserting it into the hollow interior space of the cylindrical grinding ring and filling the space which is left between the same and the core with suitable binding substance *c* that is introduced between their adjacent surfaces so that an intimate connection of the core with the cylindrical ring is obtained and both parts form practically one entire mass. As the interposed binding material has but little volume, the advantage is obtained that the binding and hardening process takes place much quicker, as is the case with the heavy and thick mass of concrete heretofore used for the core. Furthermore, the stresses which heretofore have acted unfavorably on the grinding ring are entirely obviated so that an artificial grind stone is obtained that meets as regards stability and permanency the most rigid requirements for such a stone.

I claim:

An artificial grind-stone for mechanical wood-pulp, comprising an exterior cylin-

drical grinding ring, an interior hollow core
of concrete adapted to be placed on the
shaft, and an intermediate layer of a bind-
ing substance interposed between the grind-
5 ing ring and the interior core for uniting
the same.

In testimony, that I claim the foregoing

as my invention, I have signed my name in
presence of two subscribing witnesses.

OTTO SCHMIDT.

Witnesses:

ALFRED DIX,
HEINRICH WARLICH.