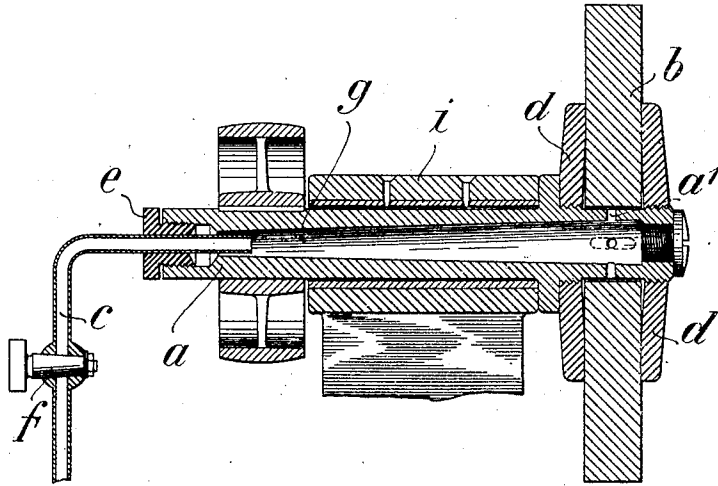


No. 796,466.

PATENTED AUG. 8, 1905.

G. STOLZENBERG.
GRINDSTONE.

APPLICATION FILED JULY 18, 1904.



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UNITED STATES PATENT OFFICE.

GEORG STOLZENBERG, OF BERLIN, GERMANY.

GRINDSTONE.

No. 796,466.

Specification of Letters Patent.

Patented Aug. 8, 1905.

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To all whom it may concern:

Be it known that I, GEORG STOLZENBERG, a subject of the German Emperor, and a resident of Christianiastrasse 9, Berlin, Germany, have invented certain new and useful Improvements in Grindstones; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters of reference marked thereon, which forms a part of this specification.

This invention has relation to grindstones, and more particularly to an automatic supply of water to the grinding-surface from the axis thereof through the body of the stone.

As heretofore practiced, the water has been supplied under pressure to an axial chamber in the stone and from thence through radial ports in said chamber to an annular chamber or channel formed in the stone itself. This construction, however, presents inconveniences in that the formation in the stone of the annular chamber or channel around the axial chamber weakens the stone to such an extent as to render these means unavailable for large grinding-stones rotatable at a high rate of speed, as they are liable to fly to pieces or, as is commonly said, to burst. On the other hand, when the water is fed to the axial chamber under pressure the supply cannot be readily controlled and must be cut off when the stone is at rest and of course implies a source of supply of water under a sufficient head—as, for instance, a system of water-distribution or an overhead reservoir. I have discovered that when the axial chamber is of sufficient internal area and the stone is rotated a partial vacuum is formed therein, and the water is drawn into said chamber by suction and driven through the body of the stone to its periphery by centrifugal action. This I attain by providing the shaft on which the stone is directly mounted with an internal chamber tapering from the eye of the stone outwardly and fitting the feed-pipe fluid-tight in the smaller end of the chamber, the shaft being provided with radial ports leading from the chamber to the eye of the stone. Practical experiments have fully verified this by the water issuing from the grinding-surface in the form of a mist.

The accompanying drawing illustrates, as an example, by a vertical sectional view one mode of carrying out my invention.

b indicates the grindstone, *a* the revoluble shaft on which it is mounted, said shaft being hollow, its bore *g* increasing gradually in diameter from the supply end to the delivery end thereof to form a chamber of such internal area as to contain a comparatively large or a sufficient volume of air to be driven out by centrifugal force in starting to produce a sufficiently powerful suction to draw in water from a level below the axis of rotation of the shaft. By gradually increasing the cross-sectional area of the bore of the shaft from the supply to the delivery end thereof the ports *d* therein leading directly to the stone *b* are sufficiently far from its axis of rotation to cause said ports, in my opinion, to act like the blades of a suction-fan, so that when the shaft is rotated at a suitable speed the air is drawn to and through the pores of the stone to and out of the grinding-surface, thus drawing in water from a suitable receptacle (not shown) below the axis of rotation of the shaft, whose supply end has connected thereto a pipe *e*, provided with a stop-cock *f*, which pipe dips into the water in said receptacle. The opposite end of the shaft *g* is closed by a screw-plug or by any other suitable means. The stop-cock *f* serves chiefly for controlling the supply of water to the stone, as it is obvious that when the latter is at rest the water in the shaft will flow back to the receptacle, so that it is not necessary to cut off the supply. On the other hand, by dispensing with the auxiliary chamber or channel, hitherto deemed necessary and hereinbefore referred to, the stone is not weakened, as its shaft forms practically an integral part thereof. The percolation of the water from the shaft to the lateral faces of the stone is prevented by suitable circular heads or cheeks, which may be screwed onto the shaft, one of said cheeks abutting against an annular flange on the shaft, so that they can readily be tightened up.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination with a grindstone, a revoluble shaft on which said stone is secured, said shaft provided with an internal chamber tapering from the eye of the stone outwardly and provided with radial ports leading from said chamber directly to said eye; of means to prevent escape of liquid from opposite ends of the eye of the stone, and a feed-pipe stationary relatively to the shaft and fitted fluid-tight in the smaller end of its chamber where-

by when the shaft is rotated a partial vacuum is formed in said chamber and water drawn in by suction and driven through the body of the stone to its periphery by centrifugal action.

2. The combination with a grindstone, a shaft to one end of which said stone is secured, said shaft having an internal chamber tapering rapidly from the eye of the stone nearly to its opposite end and provided with radial ports leading from the end of greatest diameter of the chamber directly to said eye; of means to prevent escape of liquid from opposite ends of the eye of the stone, a feed-pipe

fitted fluid-tight in the end of least diameter of the chamber, said pipe stationary relatively to the shaft, and provided with a regulating-valve, suitable bearings for said shaft and a driving-pulley thereon to rotate the same, for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEORG STOLZENBERG.

Witnesses:

JOHANNES HEIN,
HENRY HASPER.