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L. A. CORNELIUS.  
MILLING CUTTER.  
APPLICATION FILED NOV. 6, 1910.

Patented Apr. 25, 1911.

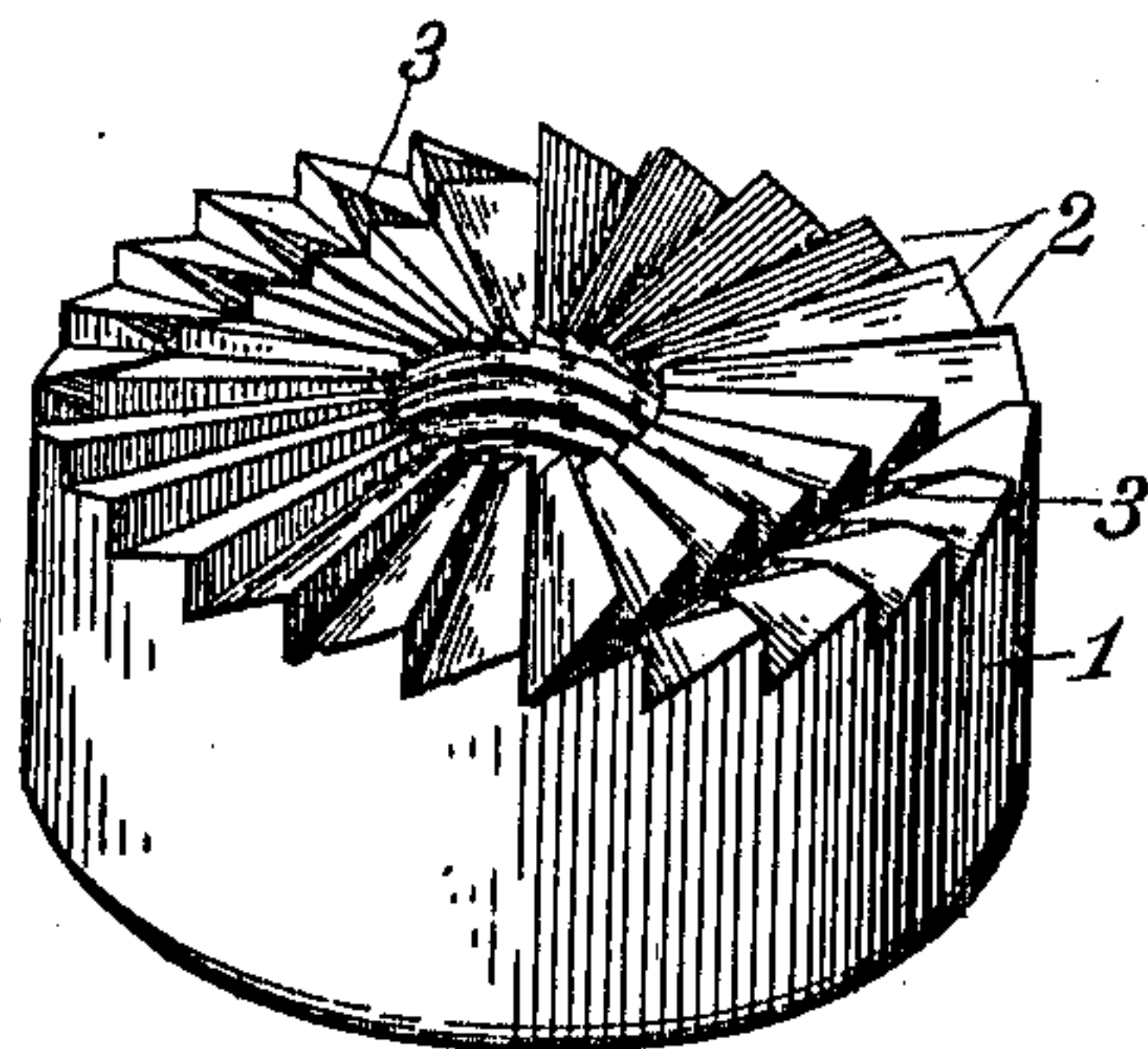


FIG. 1.

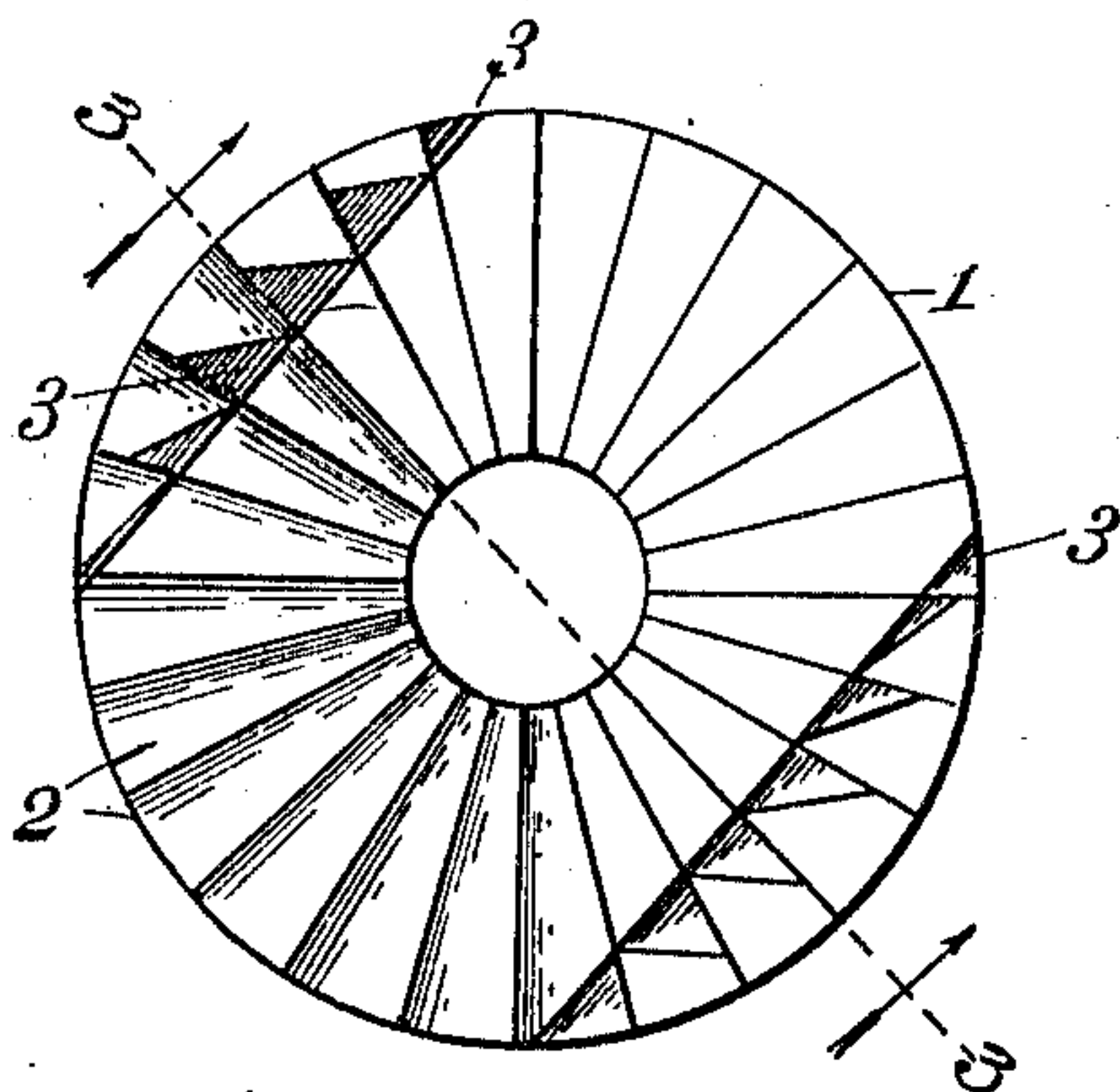


FIG. 2.

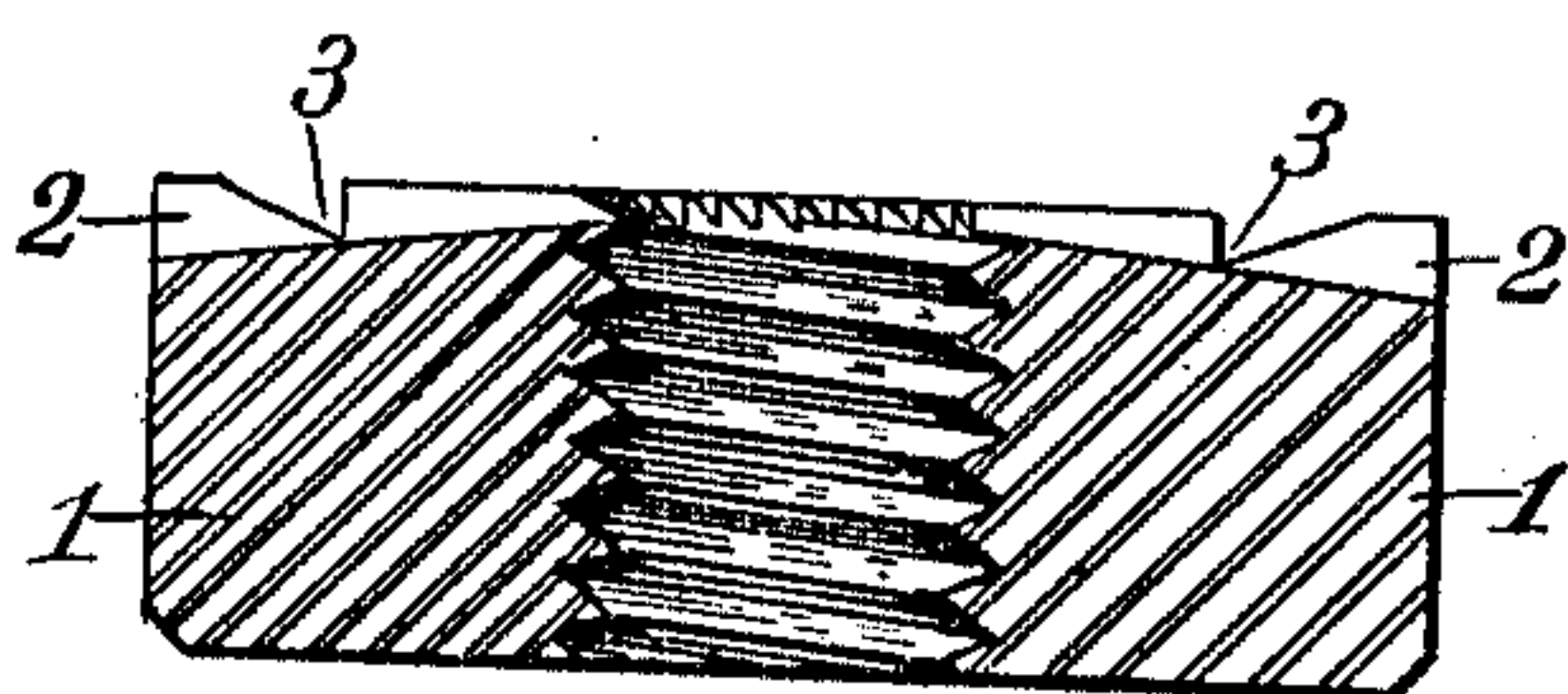


FIG. 3.

Witnesses  
Harold O. Van Antwerp  
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Inventor  
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# UNITED STATES PATENT OFFICE.

LOUIS A. CORNELIUS, OF GRAND RAPIDS, MICHIGAN.

## MILLING-CUTTER.

990,230.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed November 5, 1910. Serial No. 590,863.

*To all whom it may concern:*

Be it known that I, LOUIS A. CORNELIUS, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Milling-Cutters; 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.

My invention relates to improvements in end milling cutters and more particularly to such mills as are used on valve seating tools, and its object is to provide the same with means for preventing the tool from chattering and thus making rough work. Heretofore such mills have been made with radiating cutting teeth and when rotated in contact with the work, the teeth would cause a vibration of the tool resulting in what is technically known as "chattering" and consequently a rough and uneven surface would be left on the work, thus defeating the purpose of the operation. To remedy this difficulty, I have found that by making a portion of the teeth non-continuous this difficulty is entirely overcome and the tool will work without such vibration and leave the surface of the work smooth, even, and in satisfactory condition.

Referring to the drawings which represent an embodiment of one form of my invention: Figure 1 is a perspective of an end milling tool adapted for dressing the seats of valves, such as globe valves and the like; Fig. 2 a plan view of the cutting end of the same; and Fig. 3 a section through the axis of the same on the line 3—3 of Fig. 2.

Like numbers refer to like parts in all of the figures.

1 represents the cylindrical body of the cutter having an axial opening, screw threaded to receive the end of any suitable arbor or spindle for operating the cutter.

2 represents the usual radially disposed teeth on the end of the body adapted to operate upon the work in the manner of the usual end mill, and 3 represent portions of the teeth cut away, whereby the same are rendered non-continuous. These cut away portions are preferably in the form of channels or grooves 3 extending chordally across the face of the cutter and through the projecting teeth on the same, whereby a portion of the teeth are rendered non-continuous. This has the effect to remedy any tendency on the part of the cutter to chatter or vibrate when in operation and renders the work smooth when operated upon by the cutter.

While I have shown the mill provided with a central screw threaded opening to provide for attachment to the driving arbor, it is obvious that such a mill may be provided with any of the common forms of attachment to a driving arbor, such as an integral shank, a plain opening, or an opening provided with a key, etc., without departing from the spirit or purpose of my invention.

What I claim is:—

1. An end mill having a cylindrical body with a central opening to receive a driving spindle, radially disposed cutting teeth on the end of the said body, and recesses or cut away portions in the teeth whereby the same are rendered non-continuous.

2. An end mill, substantially as described, comprising a cylindrical body having radially disposed cutting teeth on the end and chordally disposed channels extending across the said end whereby a portion of the teeth are made non-continuous, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS A. CORNELIUS.

Witnesses:

WALTER H. BROOKS,  
PALMER A. JONES.