

L. D. COGSWELL.  
Grinder.

No. 220,911.

Patented Oct. 28, 1879.

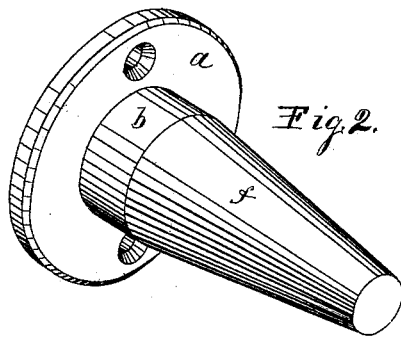


Fig. 2.

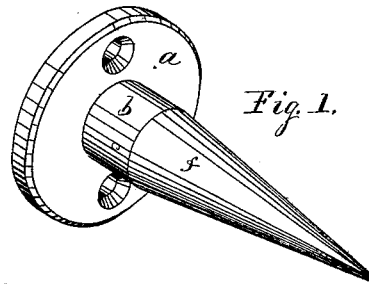


Fig. 1.

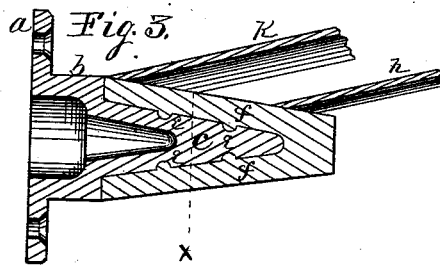


Fig. 3.

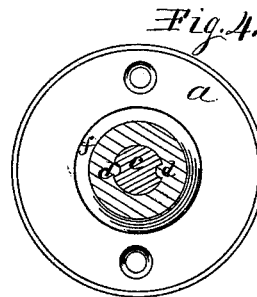


Fig. 4.

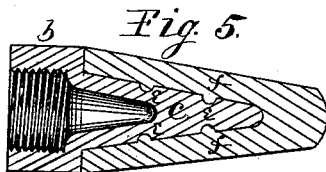


Fig. 5.

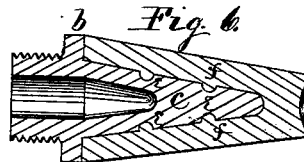


Fig. 6.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN GRINDERS.

Specification forming part of Letters Patent No. **220,911**, dated October 28, 1879; application filed March 4, 1879.

*To all whom it may concern:*

Be it known that I, LORENZO D. COGSWELL, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Grinders, of which the following is a specification.

This invention relates to grinders designed for grinding edge-tools having curved cutting-edges, or other articles having regular or irregular curved surfaces requiring grinding, and which may be readily reduced to proper form on a suitable grinder.

My invention consists in the peculiar construction of grinders, as will hereinafter be described, and pointed out in the claim.

Figures 1 and 2 are isometrical representations of my improved grinders, differing in size. Fig. 3 is a lengthwise central section of Fig. 2. Fig. 4 is a transverse section of the same on dotted line X, Fig. 3. The remaining figures, 5 and 6, represent grinders having other forms of attachment, and will be hereinafter more fully explained.

*a* represents a metallic base-plate, of disk form, provided with a hub, *b*, which projects from its center on one side. These parts are turned or trued up in such a manner as to adapt them to be fixed in a prepared chuck or face-plate of an ordinary turning-lathe, or of a revolving mandrel fitted for the purpose, to which it may be fixed by means of screw-bolts, or in any other convenient manner, to revolve with the mandrel.

*c* represents a conic shaft or core which projects from the outer center of the hub *b*, having its outer surface roughened or uneven. In this instance its outer surface is provided with lengthwise grooves *d* and annular grooves *e*, employed to fix the grinder in place on the core.

*f* represents the grinder, which I preferably make of emery or corundum, and when these substances are employed they are prepared in the usual manner, and are molded on the core in conic form, and are then exposed to the hardening process substantially the same as is common in the preparation of such work. These grinders are then placed in a lathe and fixed therein by means of the base-plate *a* in the same manner as hereinbefore described, and the grinders are then turned or trued in

the lathe in conic form in the same manner as other formed grinders are now trued or reduced to the required form. In this manner I produce an overhanging conic grinder, which can be readily attached to the mandrel of an ordinary turning-lathe by chuck or face-plate connection, or to the projecting end of a revolving mandrel fitted for the purpose, and when so mounted will be capable of use for the purpose of grinding gouges, molding knives, cutters, or any similar articles having curved surfaces requiring grinding.

At *h*, Fig. 3, is represented in lengthwise central section a portion of a gouge as applied to the grinder, and at *k* is a like representation of a larger gouge as applied to the same grinder, from which it will be seen that by the conic form of my improved overhanging grinders they are capable of use throughout their length, and are adapted to grinding large or small gouges, or other articles having surfaces differing in their curvatures.

To meet the requirements of a grinder of this class it is proposed to produce them in a series from the complete cone, as represented at Fig. 1, to any required or practical size in a frustum of a cone, as represented in Fig. 2, and when so constructed their projecting ends may be made convex, as at Fig. 5, or concave, as at Fig. 6, or they may be of any of the known forms which will be found most useful for the purposes required by the user.

From the foregoing it will be seen that in a series of these conic grinders, consisting of a few pieces, every conceivable circle within the range of the series, from their smallest up to their greatest diameter, may be produced in mechanical perfection.

In the foregoing I have described my improved grinders as being produced on a metallic core having a base-plate by which to fix it to a revolving mandrel; but they may be formed on a core screw-threaded internally or externally, or both, as represented in Figs. 5 and 6.

I am aware that conical grinders are old, and hence make no broad claim to a grinder of such form, but limit my claim to my improved construction.

I have described my improved grinders as being especially adapted for edge-tools hav-

ing curved cutting edges; but they may be employed for grinding curved surfaces on other articles.

I claim as my invention—

In an overhanging conic grinder, a metal core provided at its base with a perforated plate for the attachment of the core to a lathe or revolving mandrel, said metal core made tapering at one end and furnished with longi-

tudinal and transverse grooves, and a grinding face or surface composed of emery or equivalent material, molded upon said grooved tapering metal core, substantially as set forth.

LORENZO D. COGSWELL.

Witnesses:

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B. C. WHITE.