

C. F. JENKINS.
TAPERING METAL BODIES.
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1,017,671.

Patented Feb. 20, 1912.

Fig. 1.

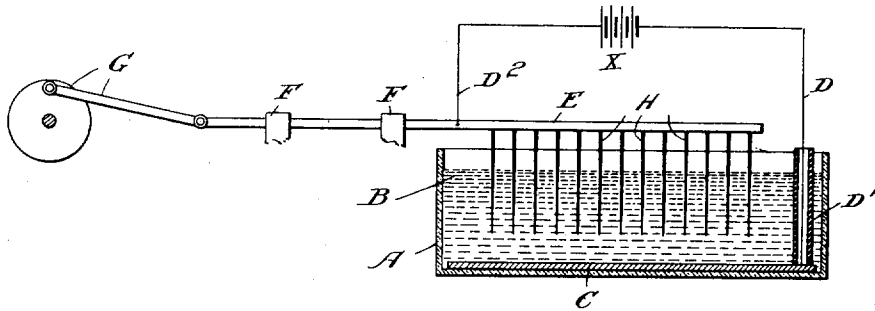


Fig. 2.

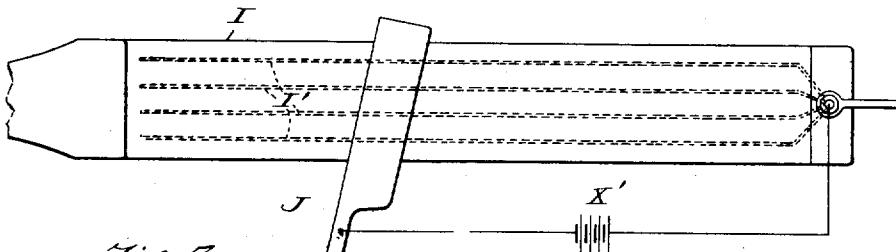
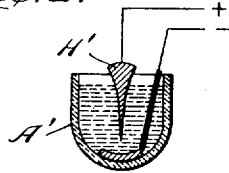


Fig. 3.

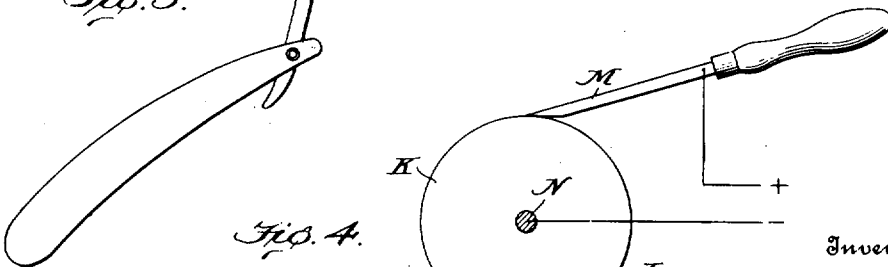


Fig. 4.

Witnesses

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To all whom it may concern:

Be it known that I, CHARLES FRANCIS JENKINS, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Tapering Metal Bodies, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to tapering or pointing small metal bodies, such as needles or needle-like appliances, and similarly diminishing plate-like bodies, such as cutting tools, for example, by the aid of electrolytic action.

In the accompanying drawings, Figure 1 shows in side, partly sectional, elevation apparatus for pointing needles. Fig. 2 shows, in cross section, analogous devices for operating upon a razor. Fig. 3 shows in plan devices constituting a different application of the same general ideas in stropping a razor. Fig. 4 illustrates the application of the same ideas in grinding a chisel.

All these embodiments are based upon the fact that an electric current causes acidulated liquid to attack steel much more actively than when the current is not employed. I have found that to secure this rapid electrolytic action it is not necessary to immerse the metal in a liquid bath, but that wherever the acidulated liquid is present and completes the circuit through the steel body there is, by reason of the current, more or less increase of effect upon the steel.

In Fig. 1 A represents a glass vessel containing an electrolytic liquid B. C is a lead plate lying in the bottom of the vessel and connected with a conductor D leading to any suitable source, X, of current and having that portion passing through the liquid insulated as shown at D'. E represents a conducting bar or clamp, sustained by bearings F and slowly reciprocated by a crank-plate and pitman G. The bar or clamp E holds in vertical position in the liquid B a series H of steel needles, for example, to be tapered and pointed. A wire D² leads from the current source X to the bar E. If now current be supplied from X circuit is established through D², E, H, B, C, D, and the steel needles H are all attacked, the action being most rapid at their lower ends and progressively decreasing as distance from the lead plate increases, with

the result that the needles quickly become pointed, although they are, of course given a mat surface.

Fig. 2 shows in cross section an analogous cell A' with a razor blade H' taking the place of the needles of Fig. 1. Fig. 3 illustrates embedding in a razor strop I conducting wires I' connected with a source X' of current. The strop being saturated with a suitable electrolyte, a razor J electrically connected to the source X' and stropped in the usual way will be very rapidly affected or brought to condition for smoothly cutting.

In Fig. 4, K represents diagrammatically a porous stone rotating with its lower side in a trough L containing acidulated liquid. A tool M to be ground and the shaft N which carries the stone are connected, respectively, with the positive and negative poles of a generator. When the tool rests upon the saturated porous stone, circuit is completed and the tool is sharpened quickly by the combined action of the two agents.

It is to be noted that when a bath is used as in Fig. 1, it is advantageous to cause relative movement of the article acted upon and the electrolyte and a means to this end is there illustrated. I have found this method when practiced as illustrated in Fig. 1 highly advantageous in tapering and pointing extremely slender broaches, used by dentists, and the like tools and articles.

What I claim is:

1. For sharpening cutting implements, the combination with a porous sharpening material containing an electrolyte, of means for supplying an electric current through said electrolyte and the implement to be sharpened when the latter is placed upon the abrading material.

2. The combination with a porous strop saturated with an electrolyte and having electrical conductors embedded therein, of a source of electric current, means for connecting one terminal of said source to said conductors, and a flexible connection adapted to join the other terminal to a razor to be sharpened upon said strop.

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

CHARLES FRANCIS JENKINS.

Witnesses:

JAMES L. CRAWFORD,
ROBERT CRAIG GREENE.