

through the blaze of the Bunsen burner. Some will tell you to temper always in oil. The material does not matter so much as the metal does. You cannot make soap or oil or anything else do the tempering. There is a great deal more in the man than in the material. Do not hold it over the Bunsen burner till it becomes red, perhaps more so in one place than another, with the possibility of raising that steel above the proper heat; but bring it up to a uniform red heat, and with a little practice you will be able to distribute the red color evenly over the smallest instrument, no matter how difficult, by passing it back and forward at different places. Bring it up to a cherry red or a little beyond, and as soon as it is right you can immediately put into the water, which should be right at hand so that you can plunge it in and thus bring it up to an intensely hard fibre. Another way of doing this is to carry it into molten lead first and then plunge it into water. Now we have steel of the hardest temper, and we need to draw it, else it would break with the drills. You must polish the surface so that you can see the color of the steel as it comes up. Grasp the cutting end of the drill in a pair of heavy pliers, and then with a very delicate blaze commence heating this, at first, along the heavier portion of the shank. Gradually it turns into a straw color, from that into a dark blue, then into a light blue. Carry that light blue up to the point where you have grasped the plate, and then it is properly tempered. With a tap you can polish all back plates where the thread is cut.

In my practice we make the nuts out of five-cent nickel pieces. A good way is to make them out of wire that is drawn square with a hole in the centre, cutting a thread in the hole and sawing off from the squared wire the nuts; but that does not make as perfect a nut as I would want. We have tried it for years and know all about it, and we find that that plan does not give a perfectly solid surface, and even if it be rimmed out every once and a while you have a very imperfect nut, but many prefer that way. I prefer to have something that is perfectly solid, and I can get that in no other way than by making it out of one solid piece. I find that the quality of the metal in a five cent nickel is all ready for that kind of work, and it is about the right thickness. It is quite inexpensive compared to the real worth of the nuts, because if you are skilful you can make at least fifty nuts out of a five cent nickel. I have a son who made seventy-two nuts out of a five cent nickel piece (applause); still if you can get forty or fifty perfect nuts out of a nickel you are doing very well indeed. The way we do is to take the nickel and saw one edge of it—making a segment of the nickel in that way—and then divide it into lines that are about the right size for the nuts, laying the nickel down and using a little straight-edge and a scratcher, and then the other way one single line; punch