

On Annealing Cast-Steel, so as to make it as soft as Iron.—By
JACOB PERKINS, Esq.

WE were lately shown by an American friend, some slips of thin cast-steel, which were as soft and pliant, and as easily bent into any required shape, as though they had been tinned sheet-iron. They were of a light gray colour, perfectly free from oxidation or scales, and were still capable of hardening, on being heated and quenched in water.

On mentioning this fact to Mr. Perkins, he stated that the process was known to him, he having practised it in America with great advantage; and he had even communicated it to one intelligent engineer in this country, who had since constantly employed it.

The secret consists in inclosing the cast-steel in close cast-iron vessels, which completely exclude the external air; and in keeping them at a moderate red heat, in a proper annealing furnace, a sufficient length of time, according to the thickness of the steel; and, lastly, letting them cool very slowly.

This process is superior to the usual practice of decarbonating cast steel, and reducing it to the state of iron; which renders it necessary to restore its steely nature again, by case-hardening it, before it can be hardened as usual.

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On Annealing Iron and Steel Wire.—By THOMAS GILL, Esq.

ALTHOUGH “the annealing of cast-steel in close vessels,” as described to us by Mr. Perkins, and as given in the preceding article, was a new and valuable fact; yet we well knew that a similar practice had long been used, both in this country, and in France, for annealing iron, and steel wire.

The late scientific M. Nicolas Paul, of Geneva, described to us, twenty years since, the practice employed in an iron wire drawing manufactory in France, to anneal their wire; which was by enclosing the large coils, in cast-iron vessels of an annular or ring shape, open in the middle, to allow the flame of the furnace to play through them; and the section of which rings was a semi-circle, having flat cast-iron rings, as covers to the flat tops of the vessels. Ears were made around the internal, and external borders, both of the vessels and their covers, with corresponding holes in them, into which wrought-iron pins, with heads, were put, and which pins had also holes near their ends, through which iron wedges were driven, to draw the covers close to the vessels, the juncture being previously made air-tight by a luting of loam. These vessels were heated in a kind of oven-shaped furnace, having a grate of iron bars, for the fuel, and vessels, to rest upon, with doors both to the oven and ash-pit.

We also saw, about the same time, the method employed by the late Mr. John Burr, at his steel wire works, near Hales-Owen, in Shropshire. He enclosed his bundles or coils of steel wire, for needle and