the mould is but little, if any, more than the ordinary wooden mould, and it can be easily applied to brick machines already in use. The brick comes out smooth, with perfect sides and edges, the mould being raised from the palette or plate on which the bricks are made. It has, we understand, given perfect satisfaction wherever used. Rights can be obtained of P. Murguiondo, Baltimore, Md., who is the patentee's agent for the United States.— Scientific American.

Process of Hardening Copper.

A correspondent at Upper Sandusky, Ohio, says the American Artizan, states that a Mr Disman, of that place, has discovered the process of bardening copper, and has secured a patent for it. The art is supposed to have been lost since the days of King Solomon. The material is properly called silicated copper, and can be worked without friction. All necessity for oiling machinery made from it is obviated. The writer says the Cleaveland, Columbus, and Cincinnati Railroad is now testing the prepared metal, and in case of its success are prepared to give the inventor \$10,000 for its use on the road. There is much excitement and interest in Upper Sandusky over the subject.

Calorie Engine.

Another caloric engine has been patented in the United States, by a Mr. T. McDonough, of Newburgh, N. Y., which is thus described in a communication to the *Scientific American* :---

"This machine consists of a cylinder, open at the top and closed at the bottom. The furnace is at the lower end of this; a plunger moves in it above the fire, and also a piston at the upper or open end. The air to feed the fire is drawn into the cylinder through holes in its periphery, which are uncovered when the piston is at the upper end of its stroke. The plunger moves the air through a side pipe and under the fire. It expands and does its work by forcing the piston upward, after which the plunger expels it through an exhaust valve near the top of the side pipe.

By this arrangement only cold air reaches the piston, and as the parts affected by heat are covered with fire clay, it forms a durable machine. The engine has furnished a power of more than six pounds per inch to a fifteen-inch piston, of eight inches stroke, 150 revolutions per minute—the power only acting one way—and consuming fourteen pounds of coal in four hours. The heat is utilized at more than 600 degs., probably, and escapes at 100 degs., being a step toward the development of a machine superior to the steam engine in economy of fuel."

Bright Annealed Wire.

The process is to pack the coils in cylindrical cast-iron pots, with double lids, the outer one resting on a projection or rim half an inch below the top of the pot, leaving room between the outside of the inner lid and the inside of the outer, for dry sand to exclude the atmosphere. The pots should not be epened until quite cool after the heating process, otherwise the atmosphere will so far oxidize the surface as to turn the color to a blue or black.

Bessemer Steel Rifle.

An Enfield rifle barrel made of Bessemer steel withstood the Government test, 8½ drachms of powder and a bullet, although it weighed one pound only. It was then turned down till it weighed but eight ounces, and yet still sustained the charge !

A New Mechanical Aid to Surgery.

The American Artizan says an hospital has just been fitted up in Prussia, in preparation for the coming war, in which all modern improvements are intended to be used. A circular saw, driven by steam, for use in amputation, is one of the improvements; the quickness of its working being the obvious advantage of it. The old "saw-bones" surgeons may be astonished by it. With a saw that runs at 3,000 revolutions per minute, and under the influence of laughing gas, an unlucky soldier may have a leg or arm taken off very pleasantly.

Steel Tubes.

Engineering says :--- "The cold drawn steel tubes, made by the Hydraulic Tubedrawing Company, will probably soon come into use for locomotive boilers. They cost but half as much as brass, are much thinner, and are proved to 1,000 lbs. pressure. No corrosion is anticipated; and it is not apprehended that there will be any difficulty in setting them so as to make tight joints." We should like to be informed whether these tubes can be drawn with thick ends, to insure strong joints; and how much the additional cost would be.

Cleaning Horses by Machinery.

"At the establishment of the Manchester Carriage Company, at Pendleton, there is now in practical operation a novel system of cleaning horses by a steam brushing machine, invented by Mr. Haworth. The idea is derived from the revolving brush which many hair-dressers have had in use. In the lower stableyard at Pendleton there is a large shed, where a dozen horses can be cleaned at one time. Along the centre of the roof is a long shaft, from which hang several endless straps. Each strap gives motion to a horizontal pole, at one end of which is a conical brush that rotates rapidly. On a horse being brought into the stable, after his three hours' work, he is taken to this shed, and a man applies to him the machine brush. In about half an hour the animal is thoroughly cleaned, and only the head requires finishing by hand. The cleaning effected by the machine is much more searching and effectual than the most diligent hand-currying can possibly be, and to the majority of animals the greater cleanliness of their skins, as well as the improved circulation of the blood which is produced by the machine brush, appear to be acceptable. Most horses undergo the operation quietly and patiently, but in some animals timidity is produced by the rattle of the machinery. In a large establishment the most important result of the adoption of this invention is the economy of labor which results from it. Under the old system, a man was thought to have done a fair day's work if he cleaned ten or a dozen horses, but by the machine he can clean thirty in the same time, and