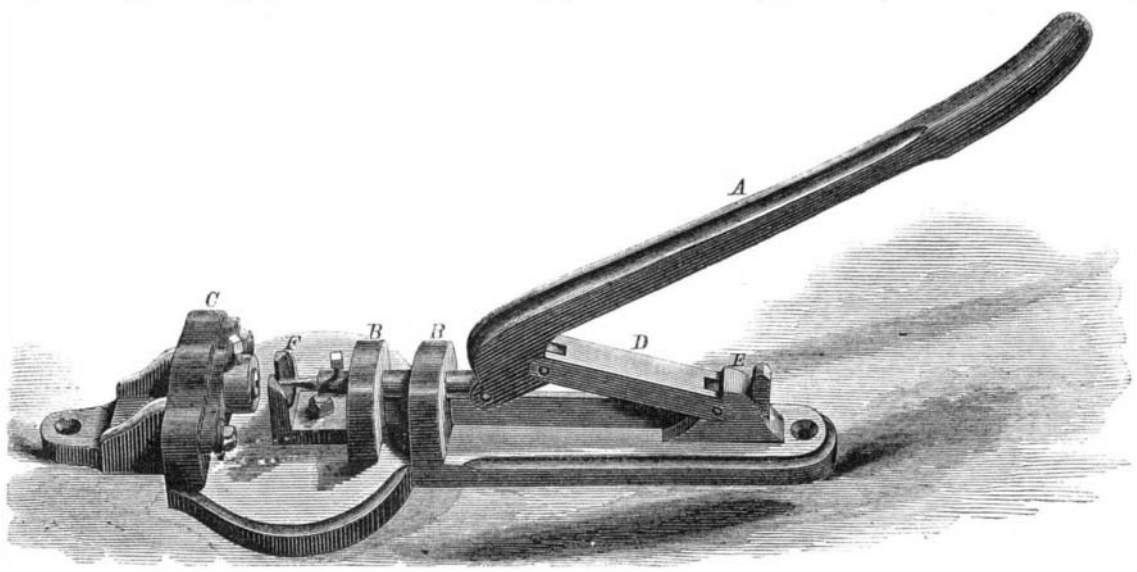
Bench Punch for Perforating Sheet Metals.

A handy punch for ordinary and shop purposes, for light work, and which may be used on the work bench, is a desideratum in any machine shop. In the machine shown in the accompanying engraving, the old device of the "toggle joint" is used, the most powerful form of the lever when moving short distances.

The machine is very simple in construction, and almost impossible to get out of order. A brief description will show its build and use perfectly. The frame, or bed plate, is a single casting, screwed to the bench. To the handle, A, is pivoted a sliding arbor moving through holes in the snugs, B, and carrying a punch at its end, held in the arbor by a set screw. The matrix, or die, is similarly held in an adjustable seat bolted to the snug, C. A lever, D, is pivoted to a snug, E, at the rear of the bed plate, and also to the handle, A, just behind the sliding arbor.



MASON'S LEVER BENCH PUNCH.

The operation is so easily understood that nothing more than a reference to it is required. The sheet or piece of metal to be punched, is placed between the punch and die, the handle de pressed forcing the punch forward and through the metal, when the handle is raised, and the punch moves back, the holder, F, releasing it from the metal.

It is apparent that punches and dies of any form may be used on this machine, as one of either may be instantly removed and others substituted. The machines may be made of different sizes, but one weighing only 21 lbs. will punch wrought iron or brass one-eighth of an inch thick. It may be used for cutting saw teeth or severing wire by employing the proper dies and punches.

Patented July 31, 1866. Orders should be addressed to Goodnow & Wightman, manufacturers and sole agents, 23 Cornhill, Boston, Mass. See advertisement on another page.

Manufacture of Clay Tobacco Pipes.

The clay of which these are made is obtained in Devonshire, in large lumps, which are purified by dissolving in water in large pits, where the solution is well stirred up, by which the stones and coarse matter are deposited; the clayey solution is then poured off into another, where it subsides and deposits the clay. The water, when clear, is drawn off, and the clay at the bottom is left sufficiently dry for use. Thus prepared, the clay is spread on a board, and beaten with an iron bar to temper and mix it; then it is divided into pieces of the proper sizes to form a tobacco pipe; each of these pieces is rolled under the hand into a long roll, with a bulb at one end to form the bowl; and in this state they are laid up in parcels for a day or two, until they become sufficiently dry for pressing, which is the next process, and is conducted in the following manner: The roll of clay is put between two iron molds, each of which is impressed with the figure of one-half of the pipe; before these are brought together a piece of wire of the size of the bore is inserted midway between them; they are then forced together in a press by means of a screw upon a bench. A lever is next depressed, by which a tool enters the bulb at the end, and compresses it into the form of a bowl; and the wire in the pipe is afterward thrust backwards and forwards to carry the tube perfectly through into the bowl. The press is now opened by turning back the screw, and the mold taken out. A knife is next thrust into a cleft of the mold left for the purpose, to cut the end of the bowl smooth and flat; the wire is carefully withdrawn, and the pipe taken out of the mold. The pipes when so far completed, are laid by two or three days, properly arranged, to let the air have access to all their parts, till they become stiff, when they are dressed with scrapers to take off the impressions of the joints of the molds; they are afterwards smoothed and polished with a piece of hard wood.

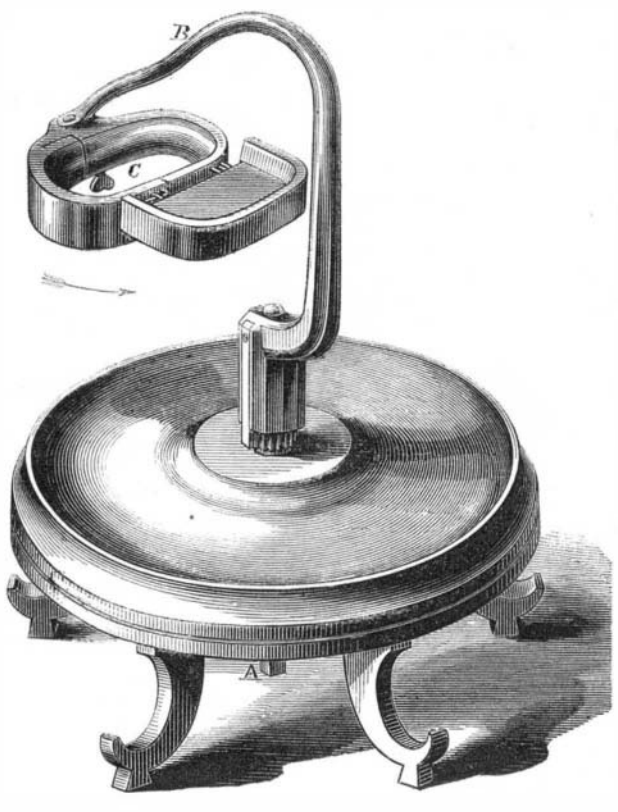
The next process is that of baking or burning; and this is performed in a furnace of peculiar construction. It is built within a cylinder of brickwork, having a dome at top, and a chimney rising from it to a considerable hight, to promote the draft. Within this is a lining of fire-brick, having a fireplace at the bottom of it. The pot which contains the pipes is formed of broken pieces of pipes cemented together by fresh clay, and hardened by burning; it has a number of vertical flues surrounding it, conducting the flame from the fire-grate up to the dome, and through a hole in the dome into the chimney. Within the pot several projecting rings are made; and upon these the bowls of the pipes are supported, the ends resting upon circular pieces of pottery, which stand on small loose pillars rising up in the center. By this arrangement a small pot or crucible can be made to contain fifty gross of pipes without the risk of damaging any of them. The pipes are put into the pot at one side, when the crucible is open; but when filled, this orifice is made up with broken pipes and fresh clay. At first the fire is but gentle, but it is increased by degrees to the proper temperature, and so continued for seven or eight hours, when it is damped and suffered to cool gradually; and when cold, the pipes are taken out ready for sale.

Dentistry in Japan.

This trade, for such it may be more fitly considered in Japan, is carried on by a very low class of people, usually peripatetic in their habits, and who carry with them a box covered with brass ornaments, by which their occupation is recognized. Now, the extraction of a tooth by one of these gentry is regarded by the Japanese as a capital operation, and not without reason, if the information given me is reliable, that death (from tetanus, I presume) is not unfrequently the result. The tooth is extracted by the operator's fingers, but not until it has been well loosened by means of a stick and a mallet vigorously wielded. The operation is seldom performed, but I saw some teeth in possession of one of these charlatans that had large portions of the alveolar process attached. In the face of these facts it can scarcely be credited that artificial teeth, sustained by atmospheric pressure, have been in use from time immemorial. These teeth are carved out of sea-horse ivory, the molars being plentifully studded with little brass bosses, and the whole strongly mounted upon a base cut from the hard shell of a species of gourd, and carved to conform to the irregularities of the gums and palate. I have several sets of these teeth in my possession; they are not expensive, the very best, a complete upper set, costing about five boos, or about one dollar and sixty cents. Colossal fortunes are not accumulated from dentistry in Japan, as may be inferred from the foregoing.—*Dr. A. M. Vedder.*

GEISLER'S PATENT BABY WALKER.

The implement represented in the engraving is intended to assist infants in learning to walk, and to amuse them in waking hours when the mother or nurse may be otherwise employed. It is a circular ornamental platform with a raised rim around its outer edge, and a standard, A, in the center, adjustable as to hight, on which revolves a curved arm, B, to the extremity of which is attached a yoke, C, for embracing the



child's body. This yoke is in two parts, one sliding within the other, and locked by a pin or screw when closed, so that it may not be opened by accident. On the front of the yoke is a tray for holding playthings or food.

The joint or pivot of the yoke, where it is attached to the end of the curved arm, permits only a slight lateral swing, so that the child can neither turn off the edge of the platform nor cramp under the curved supporting arm.

At the base of the arm, just above the surface of the platform, the standard is cut into or ratched, into the teeth of which fits a spring pawl on the upright. This allows the child to travel forward, but prevents a reverse motion. The pawl is seated in the upright, and the ratchet is concealed so that the child's clothes cannot by any accident be caught. It is partly shown in the engraving. Annoyed and wearied mothers and cross fathers will appreciate the use and value of this device.

It was patented through the Scientific American Patent Agency, Sept. 22, 1868, by Frederick A. Geisler, who may be addressed at Bristol, R. I.

PANAMA HATS.---WHAT THEY ARE MADE FROM, AND HOW.

The screw pines are natives of tropical regions; are abundant in the islands of the Indian Archipelago, and in most of the tropical islands of the Old World, but rare in America; the section Cyclantheæ, on the contrary, being exclusively confined to that continent.

This order is divided into two sections, the first of which called Pandanæ, and the second Cyclantheæ. Each of the sections contain several genera, some of which contain several species. The *Carludovica* is a small genus of the second section of the order. Of this genus the species called by botanists *Carludovica Palmata*, is the most valuable and interesting; it is the plant from whose leaves the celebrated Panama hats are made. Dr. Seeman, a celebrated South American traveler, states that the leaves of this plant are from six to fourteen feet high, and their lamina about four feet across. In the Isthmus the plant is called *Portorico*, and also Jipijapa, but the last name is the most common, and is diffused all along the coast as far as Peru and Chili; while in Ecuador a whole district derives its name from it.

The *Jipijapa* is common in Panama and Darien, especially in half shady places; but its geographical range is by no means confined to them. It is found all along the western shores of New Grenada and Ecuador; and it has been found even at Salango, where, however, it seems to reach its most southern limit, thus extending over twelve degrees of latitude from the tenth N. to the second S. The Jipijapa, or Panama hats, are principally manufactured in Veraguas and Western Panama; not all, however, known in commerce by that name are plaited in the Isthmus; by far the greater proportion is made at Manta, Monte Christi, and other parts of Ecuador. The hats are worn almost in the whole American continent and the West Indies, and would probably be equally used in Europe, did not their high price, varying from two to one hundred and fifty dollars, prevent their importation. They are distinguished from all others by consisting only of a single piece, and by their lightness and flexibility. They may be rolled up and put into the pocket without injury. In the rainy season they are apt to get black, but by washing them with soap and water, besmearing them with lime juice or any other acid, and exposing them to the sun, their whiteness is easily restored.

The process of making these hats is as follows: The "straw," previous to plaiting, has to go through several processes. The leaves are gathered before they unfold, all their ribs and coarser veins removed, and the rest, without being separated from the base of the leaf, is reduced to shreds. After having been put in the sun for a day, and tied into a knot, the straw is immersed in boiling water until it becomes white. It is then hung up in a shady place, and subsequently bleached for two or three days. The straw is now ready for use, and in this state sent to different places, especially to Peru, where the Indians manufacture from it those beautiful cigar cases, which have been sometimes sold in Europe for thirty dollars apiece. The plaiting of the hats is very troublesome. It commences at the crown, and finishes at the brim. They are made on a block, which is placed upon the knees, and requires to be constantly pressed with the breast. According to their quality, more or less time is occupied in their completion; the coarser ones may be finished in two or three days, the finest take as many months. The best times for plaiting are the morning hours and the rainy season, when the air is moist; in the middle of the day and in dry, clear weather, the straw is apt to break, which, when the hat is finished, is betrayed by knots, and much diminishes the value.

Test for Illuminating Petroleum.

The Corry (Pa.), Kerosene Oil Works recommend the following as a simple manner of determining the fire test of kerosene oil: "Take a cup or tumbler, fill it nearly full of water (previously tested by the thermometer to be 110° or 111° Fah.), then take a tablespoon full of the oil, of which it is desirable to test the igniting point, immerse it in the water, and stir for a moment or two to permit the oil to reach the equal temperature of the water, pass a lighted match very closely over the surface of the oil once, which always floats on the water. If it does not ignite, it can be safely used, but if it does ignite, discard it, however low the price may be; this is a fair and sure test as far as safety is concerned. The other so desirable point—does the oil burn brilliantly and without charring the wick?—the experience of every family will soon detect. Something depends upon the wick, and something upon the lamp; but properly manufactured oil is the main thing needed."