Improvement in Lathe Chucks.

The accompanying engravings give different views of a chuck for holding drills, wire, etc., in the lathe, which was patented by Isaac Smith, of New York, July 10, 1866. It differs in many respects from all others, employing no spring to open the jaws when the gripe of the screw is relaxed, all the movements being absolute. There are neither holes nor projections on the exterior case to become filled with dirt or to catch into the clothes of the workman. Fig. 1 exhibits perspective views of the different parts, and Fig. 2 a vertical section and a perspective of the chuck complete. A is the conical screw which gives motion to the jaws, having a shank for attachment to the lathe spindle. Over this slips a shell, B, having three or more slots in its periphery in which fit the movable jaws, C. These are threaded on the under side to fit the thread of the conical screw. The whole is

Fig. 1

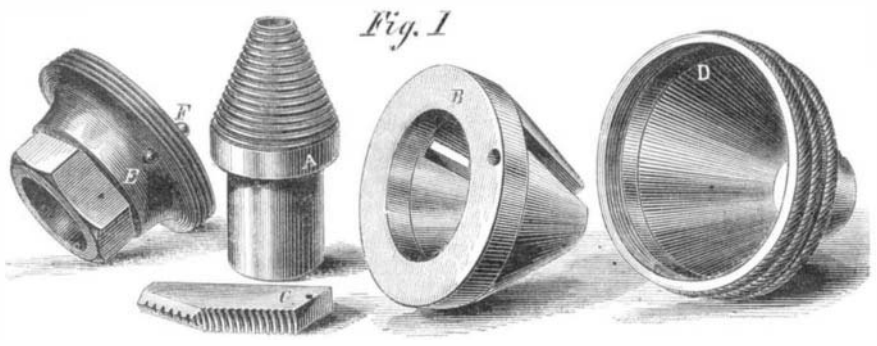
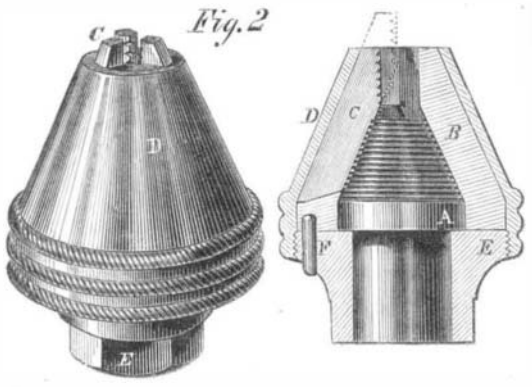


Fig. 2



SMITH'S PATENT DRILL CHUCK.

covered by the case, D, held in place by the cap nut, E, which is connected to the slotted shell, B, by a pin or screw, F.

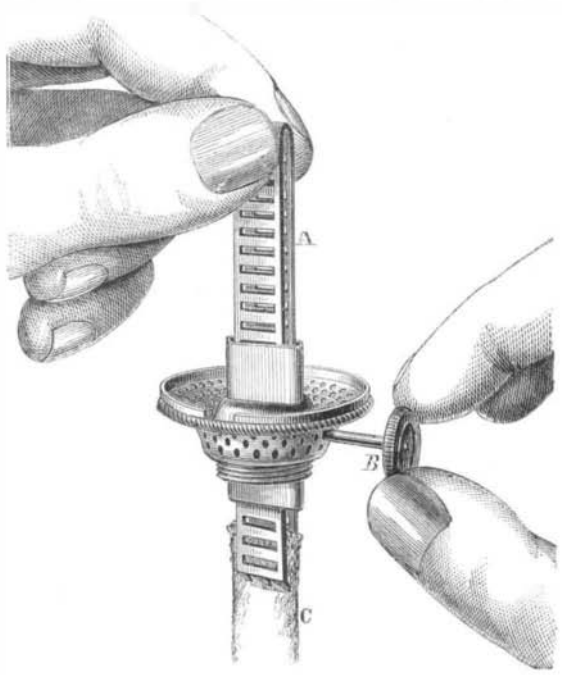
In operation the chuck may be turned with the hand, by means of the milled beading on the outer case, sufficiently hard to hold the drills, and if more force is required a wrench may be placed upon the nut, E. The chuck is very neat in appearance, and the jaws, whether open or closed, are always parallel.

This chuck is peculiarly adapted to screw making from wire, and to screw machinery, having a hole through its entire length as large as the opening of the jaws. Used upon a hollow lathe spindle wire of any length may be chucked for turning or screw cutting. It will receive a long or double drill, an advantage appreciated by all machinists.

All communications, orders, etc., should be addressed to the Excelsior Chuck Co., No. 10 Park Place, New York city.

BLAETTERLEIN'S DEVICE FOR INSERTING LAMP WICKS.

All who use kerosene or other lamps which require the flat wick, understand the difficulty of passing the wick through



the flattened tube. The difficulty is much increased if the stiffened end of the wick becomes frayed or softened. The simple device shown in the engraving will enable the clumsiest or most inexperienced to pass a wick through the tube. It is a strip, A, of sheet metal, punctured with transverse slots, calculated to engage with the teeth of the pinion or spur on the elevating shaft, B, and furnished with inward bent teeth at each end. The strip is bent or doubled at the middle, so that the teeth on the ends come opposite each other.

Its operation is thus: The threader, taken in the hand, is made, by its teeth, to grasp the end of the wick, C, and then the doubled end is passed into the tube from the bottom, when, by turning the elevating pinion, its teeth "take" in the slots of the threader until the wick engages, when, of course, the spurs take the wick and the threader can be removed. Its simplicity and utility will recommend itself to every housewife.

Patented through the Scientific American Patent Agency, Dec. 31, 1867, by F. A. Blaetterlein, to whom, at West Meriden, Conn., all communications relative thereto should be addressed.

Manufacture of Artificial Stone.

It has long been known that a mixture of sand, magnesia, and bittern water, a refuse of salt works which contains chloride of magnesium, will form a strong mortar, which soon hardens, and when molded into blocks makes a good artificial stone. Many forms of these mixtures have been made. D. and W. McCaine, of Groton, Mass., have recently patented the idea of using pulverized stone, brick, etc., instead of sand.

Blocks thus made are more costly, but not any better, apparently, than the previously made blocks. The patentees give the following particulars:—

"In the preparation of such stone, we use, as a cementitious agent or agents, calcined magnesia and bittern water, and our invention consists in an artificial stone, made by combining, with stone chips and finely pulverized or powdered stone, magnesia and 'bittern water,' the residuum from salt works.

"The proportions and the process of combination preferred by us are as follows: To twenty parts, by weight, of comminuted stone and chips of stone, we add about one part of calcined magnesia, and mix them together, with sufficient bittern water to form a stiff mortar, which mortar may be molded and pressed, or simply molded, or applied with a trowel.

"Heat may be used to hasten the hardening process; but this is not generally necessary, as the stone dries well in the open air, and indurates perfectly in two or three weeks, without any application of artificial heat.

"By this process, sand, soapstone, marble, or other mineral substances, in broken, pulverized, and comminuted form, may be used for the production of blocks and slabs, the invention being particularly valuable for the utilization of chips in stone quarries, and of marble, soap-stone, and slate stone dust and chips, in places where these minerals are worked. The stone so made answers perfectly for building purposes, for tiles, for stone sinks, stoves, etc., and, generally, the same purposes for which bricks, clay, and stone blocks and slabs are employed.

"The relative quantities of finely pulverized and of broken materials that are used depend somewhat upon the size of blocks that are to be formed; but it is only necessary for the producing of the stone that the mortar, made up of the pulverized stone and the calcined magnesia and bittern water, should fill all the interstices and spaces between the broken stones or chips."

Filling of Wood for Carriage Bodies, etc.

Many cheap methods of filling the pores of wood, prior to the application of paints, have been introduced. These fillings have the effect to keep the paints and varnishes upon the surface of the wood, where they solidify and form a very smooth and elegant surface. George Chambers, of Ithaca, N. Y., in a recent patent, says:—"To any convenient quantity of boiled linseed oil I add, over and above the ordinary drying use of the article, any free and large excess of litharge, and also a small quantity of chalk, or of chalk, and whiting, and starch. This makes a thick, glutinous semi-fluid mass. Next, the surface of the wood being cut, planed, or sand-papered, or otherwise smoothed or polished, but having no preparation or mixture of any kind on it, I coat it over with the above preparation, rubbing it freely into the pores and grain of the wood. Then I at once apply a thick dusting or coating over the wood thus covered with sulphate of lime or plaster of Paris. I let it stand for a few moments, that the fluid parts of the oil may be absorbed by the sulphate of lime. Then I proceed at once and polish the surface, using if necessary, more plaster of Paris in so doing. Brushes, woollen cloths, and other articles in rubbing and polishing, are used. Further, to suit the color of the wood, I use in my preparation, and in the plaster of Paris, various coloring substances, the mineral ores being especially useful, as Vandyke brown, umber, Spanish yellow for black walnut and oak, chalk and whiting (in additional quantities) for maple and cucumber and satin wood, and so of other colors and woods. These I mix in the preparation before it is applied to the wood, and, if necessary, in the plaster of Paris in polishing. The result is a fine, clear, even polish, that hardens, and is dry and ready for use, in much shorter time than varnish or other ordinary articles and modes."

THE ERUPTION OF VESUVIUS.—Professor Palmieri, of Naples, who is engaged in making observations in all phenomena connected with the last fire outbreak of this volcano, states that he has never seen the magnetic needle so frequently or seriously disturbed as it is at present, and the seismometer records at least ten distinct earthquake shocks daily.

HOW TO HAVE WARM FEET.—It is said that the wearing of cotton stockings under woolen ones will prevent cold feet. It no doubt will when caused by moisture. The woolen stockings will absorb the moisture as it accumulates in the cotton sock, and keep the latter comparatively dry. But when the cold arises from the lack of circulation, the woolen sock will be found the most comfortable worn next to the foot.

Recipes for Steel Having Various Qualities.

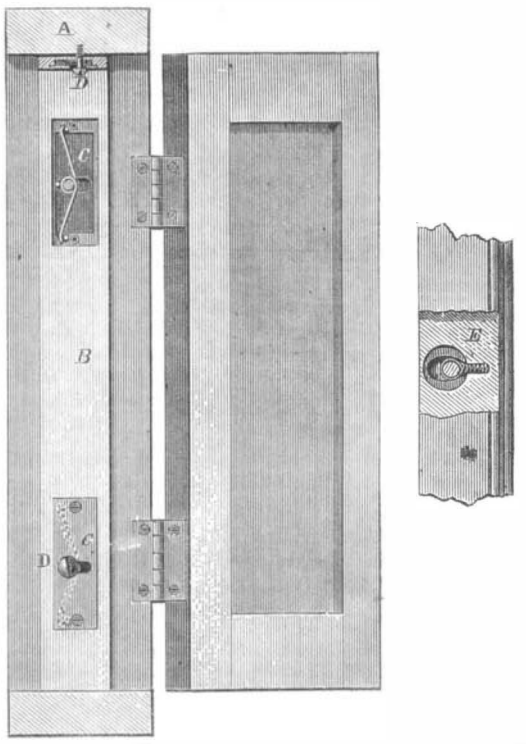
James R. Bradley and Moses D. Brown, of Chicago, Ill., have lately patented the following:—

"For treating scrap iron or malleable iron of good quality, produced by the ordinary processes, and producing therefrom different kinds of steel, we melt the scrap or malleable iron in crucibles, adding thereto chemical ingredients of different properties, and in different proportions, as follows, to wit: To make shear steel, to a pot of 50 pounds, add potash, 1¼ ounce; sal-ammoniac, 1½ ounce; manganese, 4½ ounces; charcoal, 7 ounces; sodium, 3 ounces. To make cast steel, to a pot of 50 pounds, add potash, 1½ ounce; sal-ammonia, 1½ ounce; manganese, 4½ ounces; rock salt, 3½ ounces; charcoal, 7 ounces. To make German steel, to a pot of 50 pounds, add potash, 1½ ounce; sal-ammoniac, 1½ ounce; manganese, 4½ ounces; charcoal, 7 ounces. To make Damascus steel, to a pot of 50 pounds, add potash, 1⅝ ounce; sal-ammoniac, 1⅝ ounces; manganese, 5 ounces; saltpeter, 4 ounces; charcoal, 7 ounces. To make saw steel, to a pot of 50 pounds, add potash, 1½ ounce; sal-ammoniac, 1½ ounce; manganese, 4½ ounces; charcoal, 8½ ounces: common salt, 3½ ounces; saltpeter, 1 ounce. To make silver steel, to a pot of 50 pounds, add potash, 1½ ounce; sal ammoniac, 1⅝ ounce; manganese, 4⅝ ounces; charcoal, 8 ounces; salt, 3½ ounces; alum, 1 ounce. To make file steel, to a pot of 50 pounds, add potash, 1 ounce; sal-ammoniac, ⅝ ounce; manganese, 4 ounces; charcoal, 9 ounces; salt, 3½ ounces; alum, ¼ ounce. To make rifle steel, to a pot of 50 pounds, add potash, ⅝ ounce; manganese, 4 ounces; charcoal, 3½ ounces; salt, 3 ounces; alum.

"What we claim, as new, is—The improved processes for making steel of different kinds herein described, by mixing the several ingredients in the proportions, and melting the same with malleable or scrap iron, as specified."

BUTLER & WARING'S WEATHER STRIP FOR DOORS AND WINDOWS.

Slamming doors and rattling windows are annoying to the strong and healthy as well as to the nervous and feeble; and ventilation by ill-fitting sashes and doors is neither healthy nor economical. The engraving represents a self-acting or automatic weather strip which is cheap, durable, not liable to derangement, and can be easily applied. It is a simple strip of wood secured to the inside of the window sash, or door



jamb, by screws through slots, the strip being held in place by springs.

A, in the engraving, is the section of a door or window frame, and B is the weather strip. A plate, C, mortised into the strip, has a transverse slot through its center through which the screw, D, passes, engaging with the elliptic spring under the plate. As will be seen, when the door comes in contact with the edge of the strip the springs allow the strip to recede and yet holds it snugly against the door. Its action on window sashes is similar. The strip may be carried up both sides of a door or window and across top and bottom without adding perceptibly to the labor of closing. The small figure, E, shows a simpler form of the spring and plate, the first being simply a spiral and the latter a washer under the head of the screw.

It is evident from the description and engraving that this strip is very simple. Any other form or material of spring may be used, as deemed desirable. The patent—secured through the Scientific American Patent Agency—is dated June 4, 1867. Rights are for sale by Butler & Waring, who may be addressed, Box 119, Hudson, N. Y.

IN taking up belts the time used in carefully cutting the belt square is always time saved.