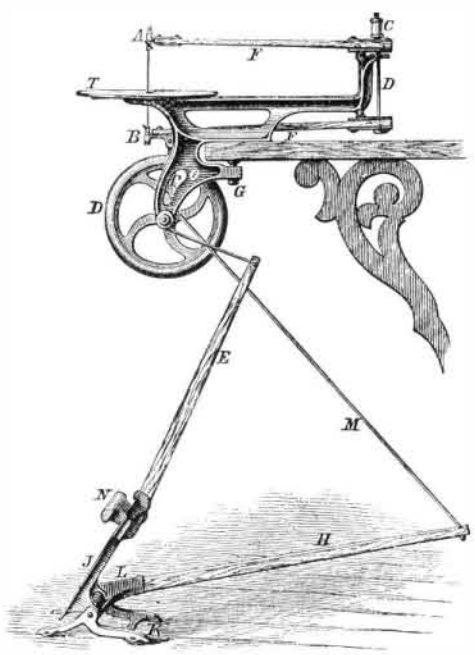
Potassic Xanthoxate.

This salt, the remarkable antiseptic properties of which were noted in a recent issue of the SCIENTIFIC AMERICAN, may be prepared by adding carbonic disulphide to an alcoholic solution of potash, or by the action of potassic sulphydrate on neutral ethylic disulphocarbonate. If fused hydrate of potassium is dissolved in half its weight of absolute alcohol, and carbonic disulphide is added slowly till the liquid no longer exhibits an alkaline reaction, and the mixture is cooled to 32° Fah., the xanthate of potassium separates in colorless needles; and an additional quantity may be obtained by evaporating the mother liquor in a vacuum, after the excess of carbonic disulphide has been separated by water. But the salt is most easily prepared by adding to absolute alcohol an excess of very pure caustic potash, and then an excess of carbonic disulphide. The mixture immediately solidifies to a mass of interlaced silky needles, which must be washed on a filter with ether to free them from bisulphide of carbon, then pressed between fibulous paper, and dried over oil of vitriol. The salt crystallizes in shining, colorless prisms, which turn slightly yellow on exposure to the air. It is very soluble in water, and dissolves readily in 5 or 6 parts of absolute alcohol. It is insoluble, or nearly so, in ether. Its solution in absolute alcohol is not affected by boiling, but its aqueous solution decomposes when heated above 122° Fah., yielding potassic trisulphocarbonate, alcohol, sulphuretted hydrogen, and carbonic acid, thus: $2C_3H_5KOS_2 + 2H_2O = K_2CS_3 + 2C_2H_6O + H_2S + CO_2$. In the dry state, it may be heated to 200° without alteration; but at higher temperatures it gives off ethylic sulphydrate, sulphurreted hydrogen, water, and carbonic oxide, leaving a residue of potassic sulphide, mixed with charcoal. The solution heated with potash is resolved into mercaptan and potassic ethylmonosulphocarbonate. Strong nitric acid decomposes it with violence. Xanthate of sodium forms yellow needle-like crystals, resembling those of the potash salt, but of a darker color. The solutions of these salts form a yellow precipitate with salts of lead; yellow with copper salts (hence the name of the acid); light yellow with silver nitrate and mercurous salts; the last mentioned, however, quickly becomes brown and black.

THE DEXTER SCROLL SAW, EMERY GRINDER, AND POLISHER.

We illustrate herewith a scroll saw which has an entirely new treadle mechanism, and which is excellently adapted for amateur use. The frame, Fig. 1, is a solid casting, provided with a clamp, G, to secure it to a table or bench. The bows, F F, of hard ash, are fitted with iron plates on the back end. These plates have knife edges, carefully made, upon which the bows rock with little or no friction. The front ends of the bows are fitted with pivoted steel screw clamps, A B, for holding all sizes of saws. The plates on which these swing are adjustable, so that the pitch of the saw can be altered if desired, or corrected if it does not run straight.

Fig. 1.



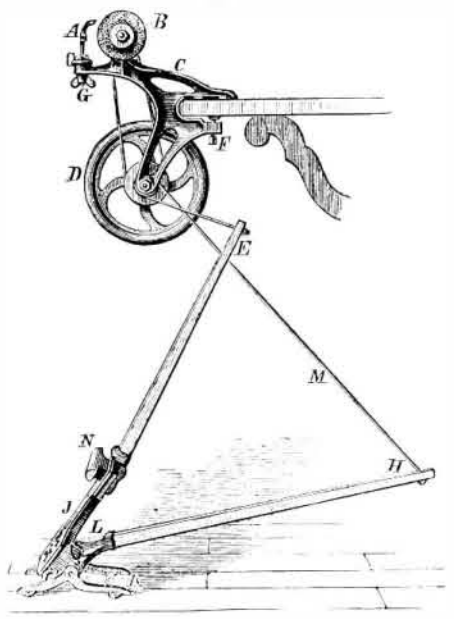
The straining rod, D, is provided with a cupped nut, C, containing a spiral spring. This and the stop in the back end of the frame hold the upper saw arm still, and the lower one in place, when from any cause the saw is disconnected.

The treadle arrangement is a floor piece or frame, K, upon which is pivoted the foot piece and rod, J E, and the counter-rod, L H. The former is forced up and the latter down, or in opposite directions, by springs. A single cord or strap, M, the ends of which are fastened to the ends of the treadle rods, is passed over the hub of the driving wheel, D, in which is cut a V groove. Pressure on the foot piece forces the cord into the groove and causes a rapid rotary motion of the wheel; as soon as released the foot piece returns to its original position, throwing the cord out of the groove, the wheel continuing its forward movement; the slack cord is instantly taken up by the counter rod; the treadle is then ready for another propelling movement.

We are informed that with ordinary treadling 1,600 revolutions of the wheel and strokes of the saw are made per minute; and as 800 to 1,000 strokes are ample for sawing, it will be seen that work may be rapidly executed with this machine with but little labor.

The same treadle motion has also been applied to an emery grinder and polisher, which is represented in Fig. 2. This is well suited for the uses of jewelers and dentists as well as for general employment. Wheels under 4 inches diameter and ¾ inch thick, of any grade or make, can be used.

Fig. 2.



Each end of the spindle is furnished with plate hubs for wheels with ½ inch holes and fitted for a small chuck which will carry drills, burrs, and small-shanked dental wheels. An adjustable rest for work to be ground is attached. With ordinary treadling, a speed of 3,500 revolutions per minute is obtained. Patented October 24 and December 12, 1876. For further information, address Trump Bros., Wilmington, Del., inventors and manufacturers of the Fleetwood and Dexter machines.

Artistic Dentistry.

Dr. J. Allen, a well known dentist of this city, has recently shown us some very fine results of his process of enameling plates for artificial teeth, on which he has experimented the past thirty years. The plates are of platinum, and the enamel is so artistically and continuously applied that every characteristic of color and form of the natural parts is accurately reproduced. At the same time, by carefully disposing the teeth in their support and by the addition of ingenious arrangements for sustaining the muscles, Dr. Allen has succeeded in restoring to the face the natural expression and fullness, usually lost by the change of the features caused by the absence of teeth. The artificial sets exhibited to us deserve high rank as a product of art; and the process has already won the commendation of the dental profession as well as awards at the three last International Expositions.

Bee-Keeping in the Himalayas.

A correspondent gives, in the London *Agriculture Gazette*, an interesting account of bee culture in India. He writes:

"Some of the villages make the keeping of bees their chief business; and although their method would perhaps hardly answer either with Englishmen or English bees, it is at any rate curious, and it is certainly very successful and exceedingly profitable.

"The houses are built of a framework of wood, which it would not be easy to describe without a sketch, but which leaves everywhere in the walls, both in their whole length and height, open spaces of about 2 feet high and from 10 to 12 feet long, which are subsequently filled up with stones and clay, after which the whole is plastered inside and out with a preparation of gypsum, which is found in abundance in the hills. The roofs are flat, of beaten clay, and the eaves project about 3 feet beyond the walls. As the whole weight of the roof rests entirely on the wooden framework, the stones and clay, with which any one of the spaces I have mentioned is filled, can at any time be removed and replaced without at all interfering with the stability. In each of these spaces, particularly in the walls facing the south, is placed one or more round earthenware waterpots, the height of which ought to be equal exactly to the thickness of the wall; these are built into the wall lying on their sides, with the round bottom outside, and its extreme convexity flush with the outside of the wall; whilst the mouth of the vessel, which is 6 or 8 inches in diameter, is flush with the wall in the inside of a room; in some houses there are as many as 40 of these waterpots (called ghurrahs in India) thus imbedded. All that is now wanted is to make a small hole on the outside convex bottom of each waterpot for the bees to enter—stick on a small patch of clay below it for them to alight on—put in a swarm and close the mouth of the pot with an earthenware lid made to fit. When honey is to be removed, all that is required is for the operator to enter the house, close the door, tap on the lid of the ghurrah to drive out the bees, or, if that is not sufficient, open the lid a little and blow in two or three puffs of smoke from a lighted rag, then open the lid fully and remove as much of the honey as may be deemed expedient, after which the mouth of the pot is reclosed, and the bees soon return and go to work again; enough of the honey always seems to be left to support the stock through the winter, and I could not ascertain that artificial feeding is ever resorted to. As the houses are occupied by the family as well as the cattle of the owners, and in winter pretty constant fires are kept up, the bees, no doubt, benefit by the heat.

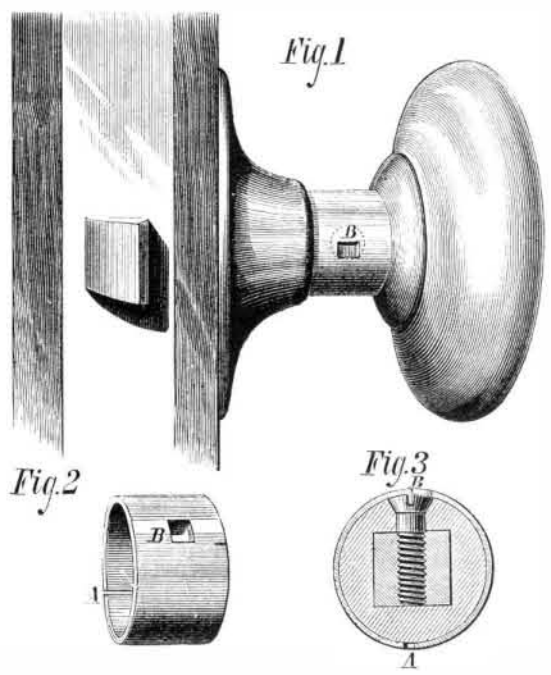
"Besides these hives, which are never killed off, each house generally has a large number of others, the result of swarming, which are managed in a different way. For these a hive is prepared thus: A piece of the trunk of a pine or cedar tree, of about 18 inches in diameter, is cut to a length of 2½ feet; this is split down the middle, and each half hollowed out in the center, so that when rejoined there is a considerable space inside. A hole is made in one of the halves for the bees to enter; and a swarm having been secured, it is lodged in the hollow log, the two parts of which, having been securely tied together, are then hung up close under the projecting eaves of the house and well out of the reach of bears, which are numerous in the district, and are very partial to honey. To get the honey from these swarms, I believe it is usual to destroy the bees; but I have heard, although I do not know exactly how it is done, that, instead of destroying all the bees, the queen only is sometimes killed, and the workers added to one of the stocks in the house wall, which may have become weak."

Dried Eggs.

A large establishment has been opened in St. Louis for drying eggs. It is in full operation, and hundreds of thousands of dozens are going into its insatiable maw. The eggs are carefully "candled" by hand—that is, examined by light to ascertain whether good or not—and are then thrown into an immense receptacle, where they are broken, and by a centrifugal operation the white and yolk are separated from the shell very much as liquid honey is separated from the comb. The liquid is then dried by heat, by patent process, and the dried article is left, resembling sugar; and it is put in barrels and is ready for transportation anywhere. This dried article has been taken twice across the equator in ships, and then made into omelet, and compared with omelet made from fresh eggs in the same manner, and the best judges could not detect the difference between the two. Is this not an age of wonders? Milk made solid, cider made solid, apple butter made into bricks! What next?—*Philadelphia Trade Journal.*

DEVICE FOR HOLDING DOOR KNOB SCREWS.

One of the commonest defects of the ordinary door knob is that the screws work loose, and thereupon the whole arrangement becomes shaky and liable to rupture. In the invention herewith illustrated, a simple little device effectually overcomes the difficulty. It consists of an elastic band, Fig. 3, of metal (steel or brass), of a proper width to suit the shank of the knob. A slit is made through the band, at A, and a small tongue, B, is also provided, which enters the



nick in the screw. The band is placed in position by springing it open and passing it over the shank. The tongue is then introduced in the screw slot, and the band allowed to spring shut. The parts then appear as in Figs. 1 and 2, the latter being a section through band and shank. Once in position, neither the band nor the screw can turn.

Patented through the Scientific American Patent Agency, April 3, 1877. For further information, address De C. May, 42 Mount Vernon Place, Baltimore, Md.

Patents at Auction.

A novel mode of disposing of patents is announced in our advertising columns. Mr. George W. Keeler, an auctioneer of experience, proposes to receive letters patents on consignment, which he will offer at public auction at stated intervals, in the same way as coal is disposed of monthly in this city.