AMATEUR MECHANICS.

GLASS ENGRAVING.

One of the simplest and easiest operations possible with a foot lathe is that of glass engraving. The tools—aside from the lathe, which every amateur is supposed to possess—are simple and inexpensive, and only a little practice is required to attain a fair efficiency in the art. Any foot lathe will do if it is provided with a drill chuck. The copper disks used in engraving may be readily adapted to the lathe by fitting a spindle to the drill chuck, and attaching the copper disk or wheel to the spindle by means of an ordinary machine screw tapped into the end of the spindle. It is best to have a spindle for each copper disk or wheel, although it is not absolutely necessary except in the case of the very smallest.

The amateur should supply himself with at least a dozen wheels of different diameters and thicknesses. Some of them should be from two and a half to three inches in diameter, and from one thirty-second to one eighth inch thick; others one inch in diameter and from one thirty-second to one quarter inch thick; also several about one half inch in diameter and of different thicknesses. He should also have some very small ones, say from one eighth to one quarter inch in diameter, and from one sixty-fourth to one quarter inch thick. The very small wheels are best formed on the end of a soft iron rod fitted to the drill chuck. Some of the wheels may be convex on the edge, some beveled, and some of them may be straight across or cylindrical. Pieces of copper tube of different sizes and thicknesses are also very useful in cutting circles in some kinds of work.

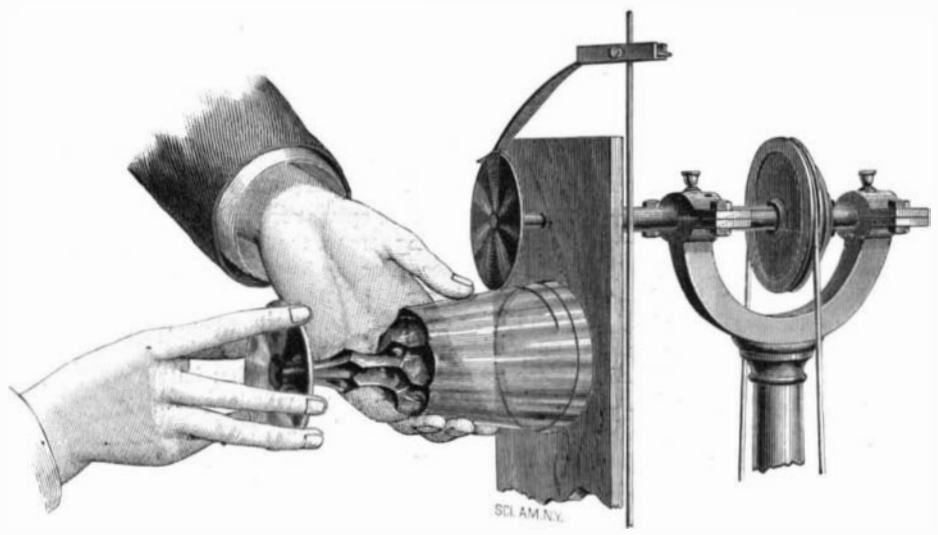

FIG. 1.—GLASS ENGRAVING, LINING.

The engraving shows a polishing lathe head in use for this purpose, but any lathe having sufficient space between the spindle and the bed will do, and if this space is insufficient the lathe head may, in most cases, be raised upon blocks to give all the space required.

A rod extending upward from the lathe bed supports a thin metal strip that rests on the top of the wheel and prevents the abraiding material from flying in the face of the operator.

The first lesson for the amateur will be that of engraving either thin or wide lines around a goblet or other vessel, or along the edges of a pane of window glass. The method of arranging the lathe and holding the work is so clearly shown in Fig. 1 as to scarcely require a word of explanation. A wooden gauge is placed behind the cutting wheel to gauge the distance of the line from the edge of the vessel. This being done, a little washed flour emery, mixed with olive oil is applied to the periphery of the wheel, the latter being revolved at a moderate speed. Now, by pressing the goblet against the gauge, and at the same time holding it lightly against the wheel and turning it slowly, a line will be formed around the goblet. As soon as the wheel ceases to cut well it should be again supplied with emery and oil. A few lines of this kind along the edges of a pane of glass give it an elegant appearance. The only necessary precaution is to have the edges of the glass perfectly straight and smooth. If it is otherwise, a piece of wood having a slit sawed in it for receiving the edge of the glass may be put on the edge of the glass temporarily to guide it.

The operation of cutting letters, vines, and other ornamental work is somewhat difficult at first, but with practice it soon becomes easy. The design is first drawn with a mixture of gum water and whiting, by means of a pen or small brush; the lines are then followed by the appropriate wheel charged with emery flour and oil. The matter of choosing the proper wheel for a certain kind of work must be left entirely to the operator, and he must get the most of his knowledge by practice if he has no opportunities for observation.

The smaller wheels will naturally be used for small work and for short curved lines, while the larger wheels will be used in making large curves and straight lines. Should it be desirable to polish the engraved work the operator will use lead wheels, applying pumice stone and oil.

Gems are engraved in much the same way as glass, the difference being that iron wheels and diamond dust are used instead of copper wheels and emery. The lathe should be fine and the tools very small. The polishing will be done with putty powder or rottenstone and oil. M.

MISCELLANEOUS INVENTIONS.

Mr. Orlo H. Drinkwater, of Cedar Point, Kan., has patented an improved grain car door fastening, which consists of a quickly adjustable fastening formed of a horizontal arm jointed in the jamb of the car door about the level of the top of the door when the latter is down, which arm is provided with a vertical screw tapped through a hole in the extremity of the arm and carrying below a foot which rests upon the top of the car door. When the screw is tightened clamps the door tightly down to its place, the arm being capable of being swung into the plane of the door when the latter is to be fastened, or turned outwardly at right angles when the door is to be opened.

Mr. Theodore Nuthmann, of Brooklyn, N.Y., has patented an improved spring-soled boot and shoe. The object of this invention is to furnish spring-soled boots and shoes, so constructed as to give the spring more freedom of movement, give more elasticity to the boot or shoe, better support the foot, and prevent the sole from spreading, as it is liable to do when the spring is inserted in the usual way.

Mr. William A. Warren, of Princeton, Ill., has patented a valve for water pipes for supplying a constant and self-regulating flow of water in troughs that are designed for watering stock. The invention consists essentially of a long arm hinged to the end of the water supply pipe, and having its free end connected to a float that rises and falls with the rise or subsidence of the water in the containing vessel, and thereby operates the arm, so that it will admit or cut off the flow of water through the supply pipe, the opposite faces or ends of the said supply pipe and arm being cut obliquely for the better working of the valve or arm within a limited space.

Mr. Enos Peters, of Appleton, Ohio, has patented a harness clamp so constructed as to clamp tugs and other long straps of harness for their whole length, and hold them securely while being stitched, trimmed, and dressed.

Mr. Emile F. Pernot, of Bowling Green, Ohio, has patented a device adapted especially for printing addresses. The invention consists of a galley or form of type made to slide intermittently in a box or case beneath a transverse slot in the cover of the said case by the action of a lever and pawl, while the same motion of the lever causes a plunger to press a strip of paper through the slot in the top of the box upon the type beneath it.

Mr. John A. Carter, of Rose Bud, Ill., has patented an improvement in the class of musical instruments wherein hammers are employed to strike upon wires or other resonant bodies arranged in any usual manner, and the movement of he hammers obtained by a perforated music sheet that is fed by a crank.

Mr. Samuel M. Wright, P. O. Box 469, Rochester, Fulton county, Ind., has recently patented an improved rein holder arranged for convenient attachment to any dashboard, and it is made adjustable as to height.

Mr. Samuel Herzberg, of Pontiac, Ill., has lately patented an improved tag or ticket holder which is very simple in its construction and well adapted to the purpose for which it is intended.

Mr. Lewis Morse, of North Attleborough, Mass., has patented an improvement in connecting the shank of the button with the top; and the object of the improvement is to facilitate the application of the button to the cuff or other object and the fastening of the two parts thereof together. The invention consists in a button made in two parts and provided with a single wire spring having its ends sheathed in opposite tubes, of which one is movable and the other rigid, opposite bends of the wire being carried under the rim of the button.

Bertha Schleifer, of New York city, has patented an improved hook and eye fastener. This invention consists in securing hooks and eyes to strips of fabric (designed to be attached to a dress waist) by means of clasps or clamps.

Mr. Thomas L. Clacher, of New York city, has patented an improved box for containing pamphlets, magazines, manuscripts, and the like articles.

An improved harvester reel, patented by Mr. William H. Akens, of Penn Line, Pa., is provided with a simple and convenient device for gathering cut grain into gavels. The invention consists of a circular plate fixed upon one of the standards and having a journal of the axle passing centrally through it, and having fixed on its inner face two segmental cams, with which the D-shaped pieces engage as the device is revolved, and thereby cause the rakes to move on their hinges, as is desired.

Mr. Michel Sichel, of Cape Girardeau, Mo., has patented an improved fire escape ladder which consists of an adjustable windlass, by which the ladder may be extended and the suspended platform be elevated and lowered.

Mr. Lewis Morse, of North Attleborough, Mass., has patented an improved method of uniting glass and enamel to metal. The object of this invention is to provide a cheap and simple method whereby, in the manufacture of buttons, studs, and other ornamental articles of jewelry and dress that consist partly of glass, enamel, or cement, the glass, enamel, or cement portions may be readily and firmly united to the metallic parts.

Mr. Albert S. Robinson, of Albany, N.Y., has patented a heel stiffener and counter support. This is a metallic device applicable to any boot or shoe heel for stiffening the heel and supporting the counter, and it consists in a plate formed with a flat head for bearing on the counter, a flange at the opposite end to rest beneath the heel, and a tongue intermediate of the ends, for entering the upper portion of the heel. The device is secured by a screw passed upward through the bottom flange and through the tongue, so that the heel is clamped between the flange and tongue.

Mr. Richard Himes, of Elizaville, Ky., has invented an improved bee hive. It is so constructed that the surplus honey can be easily and conveniently removed without disturbing or exciting the bees. It will allow the swarming of the bees to be controlled, and it can be easily arranged to form a warm and dry wintering hive.

An improved combined cotton scraper and chopper has been patented by Mr. Lorenzo D. Bowman, of Beebe Station, Ark. The object of this invention is to furnish combined cotton scrapers and choppers so constructed that the operating implements will be fully under the control of the driver, and may be adjusted to work at any desired depth in the ground.

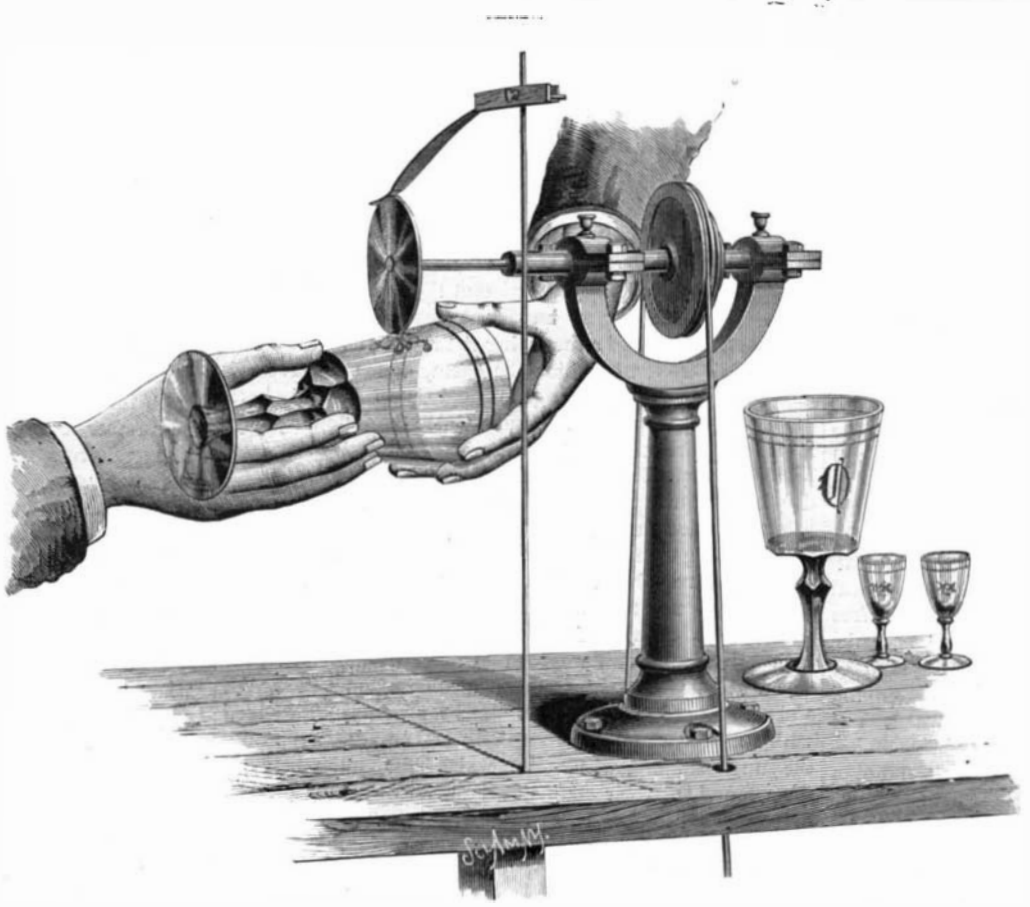

FIG. 2.—GLASS ENGRAVING, LETTERING.