The points ſhould be oiled from time to time to prevent their being exceſſively heated and ſpoiled while the iron is turning. A *crotchet* is then to be applied to the iron to be turned, a little above its centre pretty gently, and by this means the inequalities of the cylinder will be taken off Other inſtruments are then to be applied to mold the iron according to the model ; and whenever any of them grow hot, they are to be plunged into a baſon of water lying be­side the workman. If the iron, after being properly turned, is to be bored like a gun-barrel, one of the puppets is to be removed and another ſubſtituted in its place, having a ſquare hole through it, into which the collar of the iron is to be fix­ed firmly, ſo as not to ſhake ; then borers are to be applied, like thoſe which lockſmiths use to bore keys ; and begin­ning with a ſmall one, and afterwards taking larger ones, the hole is to be made as wide and deep as necessary ; great care muſt be taken to hold the borers firm on the *rest,* otherwise there is danger of not boring the hole ſtraight. The borer muſt be withdrawn from time to time to oil it and to clean the hole. Since it is difficult to make a hole quite round with borers alone, it is neceſſary to have alſo an in­ſtrument a good deal ſmaller than the hole, one of the ſides of which is ſharp, very well tempered, and a little hollow in the middle. This inſtrument being fixed in a pretty long handle, is to be applied with ſteadineſs to the inner ſurface of the hole, and it will entirely remove every inequality that may have been there before its application.

We ſhall now deſcribe the manner of cutting a ſcrew upon our cylinder. Some perſons make uſe of an inſtru­ment, conſiſting principally of a female ſcrew, for this pur­poſe : but this is rather an improper inſtrument ; for if one preſſes too violently, or inclines it ever ſo little to the right or left, he runs the greateſt riſk of ſpoiling the ſcrew. To avoid this danger, ſome persons uſe it only to trace out the lines of the ſcrew, and afterwards finiſh it with a file. But there is a much better way *of* cutting a ſcrew; and it is this. Take a tap for making a female ſcrew, the threads of which have been cut very accurately, and exactly of the ſize of the ſcrew which you want; and having put it in the opening which you have traced in the collar of the axis on which the ſcrew is to be cut, ſolder it with tin, ſal-ammoniac, and rolin, as exactly correſponding to the axis as poſſible. Take then a puppet with a hole cut into a correſponding female ſcrew, into which the male ſcrew is to be put. The axis on which the ſcrew is to be cut muſt be placed exactly horizontally between the two puppets. The rest is then to be brought as near as poſſible to the place where the ſcrew is to be cut, and a ſmall hollow ſhould be cut in that part *of* it which is exactly oppoſite to the place where the ſcrew is to be cut, to hold your inſtrument firmly and prevent it from ſhaking. The inſtrument with which the ſcrew is to be cut ſhould be very ſharp, and its point ſhould make an angle of 60⁰ with the ſcrew to be cut ; and if you wiſh the ſcrew to be cut very deep, it ſhould make an angle a little larger. The lathe being now put in motion, the tap fixed at the end of the axis will move gradually through the female ſcrew in the puppet ; and your inſtrument in the mean time will trace a ſimilar male ſcrew on the axis fixed in the lathe. Many per­sons, after having in this manner drawn the outlines of the ſcrew, finiſh it with a ſcrew-tale of three teeth correſpond­ing exactly to the ſize of the ſcrew, or with a triangular file; but this laſt method is rather improper.

This is the exacteſt method of cutting ſcrews. There is another method deſcribed by F. Plumier, which may ſometimes be of use. “ Cut (ſays he) a ſmall fillet of paper large enough to cover that part of the axis which you mean to cut into a ſcrew : then mark upon the two borders of it, which join when it is rolled on the axis, the largeneſs of the teeth of the ſcrew with a compaſs. Having thus marked the whole border at equal diſtances, draw a ſtraight line from the firſt point of the border to the ſecond, from the ſecond to the third, and ſo on. You will have ſeveral oblique parallel lines equally diſtant from one another. Wrap the fillet of paper thus marked upon the part of the axis on which the ſcrew is to be traced, ſo that the borders of it touch without overlapping each other : then all the ex­tremities of theſe lines meeting mutually, will trace out a very exact ſcrew ; and this you will mark upon the axis by means of a knife formed into a kind of fine ſaw by the edge of another knife. This firſt trace you are carefully to en­large with a ſmall file till it becomes large enough to admit the edge of a three-cornered file ; with which you cut a little ; then, taking a proper ſcrew-tale, you introduce it into the hollows already made ; and turning the lathe, you are to follow the hollow of the ſcrew with this inſtrument till the ſcrew is finiſhed.”

For turning ovals, a lathe of ſomewhat a different con­ſtruction is uſed. The axis or ſpindle, having on it the pulley over which the band-cord passes for turning the lathe, is fixed between the two puppets ſo as to turn round easily ; one end of it paſſes through one of the puppets, and to it is firmly fixed a circular plate of braſs, ſo that it turns round along with the ſpindle. Upon this plate two brazen ſegments of circles are fastened, the circumferences of which correſpond to the circumference of the plate ; their chords are parallel, and equally diſtant from the centre of the plate, ſo that they leave a diſtance between them. They have a groove in each of them : in theſe grooves another plate is placed which exactly fills up the ſpace between the two grooves, but is ſhorter than the diameter of the larger cir­cular plate on which it is laid. This plate is made to slide in the grooves. To its centre is fixed a ſhort ſpindle, on which the piece of wood to be turned is fixed. When the lathe is ſet a going, the circular plate moves round, and carries the piece along with it ; the plate of braſs on which the piece is fixed being fixed looſely in the grooves already deſcribed, slides down a little every time that the groove· become perpendicular to the floor (and there are particular contrivances to prevent it from sliding down too far) ; and by theſe two motions combined, the circular one of the large plate, and the ſtraight one of the ſmall, the circum­ference of the piece of wood to be turned necessarily deſcribes an oval ; and gouges or other tools being applied in the uſual manner ſupported on the *rest,* it is cut into an oval accordingly. The ſmall plate may be made to slide either more or leſs in the grooves ; and by this contrivance the trarſtverse diameter of the oval, or rather ellipſe, may be made longer or ſhorter at pleaſure. Another, and still ſimpler method, if poſſible, of turning ovals, is this : Take two ovals of metal, exactly of the ſize of the oval which you intend to make ; fix them firmly on the ſpindle of the lathe ſo as to turn round with it : fix between them the wood to be turned ; and then it is eaſy, by the help of chiſels and other tools, to cut it, as the lathe goes into exactly the figure of the external ovals. Or an oval may be formed by placing the wood, or whatever is to receive that shape, obliquely on the lathe. There are ſeveral other ingenious methods of turning ; but our bounds do not permit us to enter upon them. We ſhall therefore conclude this ar­ticle with a number of receipts which every turner ought to know.

I. *The method of moulding boxes both of shell and horn.—* In the firſt place, form a proper mould, which muſt conſiſt of two pieces, viz. of a circle about half an inch thick, which ſhould ſlope a little in order to draw out the mould­ed ſhell the more eaſily ; and a ring fitted to the outſide