MORTISING MACHINES.

By F. J. Harmon, in "Wood Worker."

EVERY shop should be equipped with a good power mortising machine. One fitted with the improvement of a self-turning chisel is desirable, but it does not pay, especially for heavy work, to use a machine that reverses the chisel by dropping the table. It may be well enough to use such a machine for very light work, but even then I do not like to be forced to lift the foot 12 or 18 inches, letting the work and table fall to the bottom limit of its travel, and then be obliged to raise things up again before the work can be carried along. I have done this even on big car mortising machines, but I will never buy a machine of that kind for my own use. The best reverse is a small lever arrangement located close to where the left hand would naturally be located when holding the work to be mortised.

The machine should have the boring attachment belted separate. A pretty good way is to have it fitted with the hollow shaft arrangement, or one shaft inside the other, one to drive the chisel, the other the auger. Then two tight and two loose pulleys can be put along side each other and the two belts controlled by a single shipper built with two guides. When the shipper occupies a central position, both belts are on the two loose pulleys, or, upon a single wide loose pulley, but as two belts seldom ever drive at the same exact rate of speed, and also because it may be desirable to run the auger faster than the chisel, it is better to have a separate loose pulley for each belt. Now, when both belts are shipped to the right, one goes on the chisel-driving pulley, the other to the loose pulley vacated by the first belt. But when the bit, or auger, is driven, its belt goes off to the left and the other belt comes to its place.

The shipper handle should be rigged so close to the mortiser that it can be actuated without the operator having to move from his tracks. Indeed, I like even better than the regulation shipper handle, to rig a rope attachment for operating the belt shifter. Let the rope run vertically past the post or frame of the machine, and if necessary let it past down through the floor, there to be attached to the belt shifter, and by means of pulley sheaves carried to the desired position beside the machine. Another rope is attached to the other end of the shipper and run over a pulley to a vertical position and a weight attached which is heavy enough to move the shipper and start the machine. Then, to operate the belt shifter it is only necessary to pull down or lift up on the rope. For this reason the counter weight attached to shipper must be heavy enough to operate it any time when the other weight is removed, by lifting on the main rope.

All soft woods should be mortised without boring, but in case of very deep, narrow mortises it is well to bore a single hole before commencing with the chisel. Hard wood should be bored before mortising. In some kinds of very heavy work it is well to put in a narrow chisel and make two or more cuts. This puts much less strain on the machine and is nearly as rapid, owing to the possibility of taking a thicker chip with the narrower tool.

When a good deal of deep mortising has to be done, say for door stiles, I make a square end tool 1⅛ inch narrower than the mortise and about ½ inch thick. Put this tool into the machine in place of the chisel, after that tool has been used all that is necessary, then with the blunt tool all the chips can be driven out cleanly and quickly. A tool of this kind saves a good deal of time in cleaning up a mortise, against what would be required in "beating out" by hand. But with this tool, as with the hand concern described later, it must be used carefully or the work may be split open. It is possible to drive mortise chips in with very great power, so great, in fact, that the surrounding wood will not and cannot stand it, and the result is a crack that will damage, if it does not spoil the work in hand beyond even the possibility of glue-pot repairs.

The hand tool above alluded to is made of good, hard hickory, maple or oak, hickory preferred, and sap-wood at that. A piece about 1¼ inches square is planed up, the length being eight inches more than the thickness of the stuff make the stick 12 inches long. Put one end of the stick in the vise and with a draw-knife shave down the free end until it is thin enough to go into the mortise, taking care to keep the thin part right in line with the middle of the handle or thick part, otherwise the tool will spring. Another very good way is to mark off the exact shape of the tool, then saw it out on the band saw.

In mortising by hand, I like to bore a single hole to start with in all except the very softest woods, say white pine. After the hole is bored, commence to cut down with the chisel, working towards one end of the mortise. Keep on until within ⅛ inch of the mark, then put the chisel squarely on the mark and drive it neatly down, taking great care not to cut under or to slant the other way. The nicety of the mortising depends largely upon the manner in which this last and light cut is made. Next commence again at the hole and work in the opposite direction until the end of the mortise is reached, then finish that in the same manner as the first end. The piece should then be turned over and the other side chiselled. The driving out stick should then be used. Place the mortise over some object with a hole in it, or project it over the bench a little, then drive the stick down through the mortise at the point where there are the fewest chips. Be careful and not drive too hard. Work the stick through gradually, perhaps turning the work if necessary. After once through the rest is easy. Advance the stick ¼ or ½ inch at a time, faster if the chips go out easily, and soon the entire mortise will be cleared. If the chiseling has been well done but little trimming will be needed. The tool must be held very true and driven squarely, to avoid leaving a bunch on one side of the mortise and a hollow on the other side. If trimming must be done, take a firmer chisel as wide as will easily go into the mortise, and skive high parts boldly down, taking on every part of the wood which shows itself when sighting through the mortise from one line to the other.

In grinding mortising chisels do not let the face get rounding. Keep the chisel flat on the stone when grinding the face, which should be ground as little as possible. Power chisels with corner lips must be handled with great care, and used with very light chips in knots or hard wood.

SETTING PLANER KNIVES.

WORKERS in wood are not all of one opinion as to the best way of setting planer knives. The following suggestions, however, from a correspondent of the Wood Worker, as referring to a heavy 30-inch double surface, has much in it that is practicable and sensible. The correspondent who signs himself Nemo, says :

"To start with, after taking off the dull knives, we have a sharp steel scraper, generally made from a half-round or flat file, with which we scrape off the pitch and gum from the edge of each face of the cylinder. After that is thoroughly cleaned we turn the cylinder so that one side is level (on a four-sided cylinder there would be two sides straight). We then drop a knife down on the bolts on the back of cylinder, then turn the cylinder forward until the knife is nearly level. We have a straight-edge ¾ inches thick by 1½ inches wide and 30 inches long, in which there is a rebate cut ⅛ inch wide ; the ⅛-inch is the amount of set we give the knives.

"Two men take the straight-edge and hold it up against the face of the cylinder, then push out the knife until the edge strikes the edge of the rebate. They hold it there tight with one hand, while with the other they tighten all of the bolts. Then they take the wrenches, and go over them again, putting them all down tight. After the knife is tight, they turn the cylinder forward one-half over and put the mate to the first knife on (the knives are balanced up in pairs).

"In putting the knives on the lower cylinder they shove the back bed around out or the way and take one of the bars out so they can get at the cylinder, then set the knives the same as they did on the upper cylinder. There are two bars to the lower cylinder, one on each side, which are adjustable. After they have put on sharp knives they raise these bars up so the knives will not cut too much, and as the knives are worn down by filing they lower these bars to correspond.

"In front of the upper cylinder is an adjustable pressure-bar. When we want to run the planer, after putting on sharp knives, we start the machine and put in two boards that will nearly fill the width of the planer, and feed them in a little ways beyond the upper cylinder, then stop the feed and adjust the pressure-bar so it will hold the boards down on the bed steadily and not allow them to chatter. If the lumber is coarse and knotty, we watch the work for a while, as it is liable to chip or tear. In that case, we stop the machine, and while it is running slowly, before it stops, feed the boards ahead a little by hand, when the knives that are doing the cutting will show a light streak of dust on the edge. On those knives we run a file over the edge lightly, giving the cutting edge a very short bevel. Once or twice doing that will nearly always stop all chipping or tearing.

"I will also give the way we have of setting siding or beading knives on a matcher-cylinder. It is not a patented way, but we find it a very quick and handy one. We use a small pattern that the shape of the work to be done is drawn upon, in this way : We take a piece of lattice stuff, about ¼ inch thick, 1⅛ inch wide, and a little shorter than the length of the cylinder. In that we drive a small nail in the edge close to one end ; from that nail we mark off the distance the inside head cuts from the cylinder. That is the point we have to work from. On the face of the pattern we make a line parallel with the edge, the same distance the knives are set out from the cylinder, then taking the beading or siding knife and mark on the pattern, with a sharp pencil, its proper place. After a pattern is once made any one that can set knives on a cylinder can set the knives for either ceiling or patent siding. The shape of pattern looks like that used for cove siding.

"There is one fault with this way of setting, and that is if the knives on the cylinder are filed away some, the pattern knives will cut too deep. Then you will have to set them back to correspond, and sometimes it is quite a nice little trick to get them right, especially if the siding has a long bevel."

LUMBER PRICES IN MANITOBA.

THE report of the Minister of the Interior, recently issued, gives a list of lumber prices at different points in Manitoba. The average cost of lumber to the consumer, at Winnipeg, is placed at $18, while at Brandon, 150 miles further west, it is placed at $11 to $15 per thousand. It seems strange, says The Commercial, of Winnipeg, that, according to these figures, lumber is cheaper farther from the source of supply than at Winnipeg. The figures are no doubt misleading, prices probably being based on a different class of lumber. Brandon is a manufacturing point for spruce lumber, the logs being brought down the Assiniboine river from the Riding mountain country. This class of lumber is sold much cheaper than pine, and the price of lumber at Brandon is no doubt based on spruce, while at Winnipeg it is based on pine. Pine lumber could not be sold as cheap at Brandon as at Winnipeg (much less $3 to $7 cheaper) without loss, as it costs considerable more to lay it down at the western town. Brandon, however, has always been a very cheap lumber market for the consumer, but a very dear market for the wholesale dealers, who have made heavy losses through the frequent failures of the Brandon retail dealers. The one fact accounts for the other. People up around Brandon have got cheap lumber at the expense of the wholesale dealers who supplied it. Cutting in prices has been the rule in that market, followed by frequent failures, and the trade has been in a continual state of demoralization.

A USEFUL RECIPE.

A FIREPROOF and waterproof substitute for paint, for use in boiler and engine rooms, consists of six quarts of freshly slacked lime, well sifted, to which is added one quart of rock salt and a gallon of water, the mixture being then well boiled and skimmed clean. To five gallons of this mixture are added a pound of alum, half a pound of copperas (stirred in slowly), three-quarters of a pound of potash, and four quarts of fine sand or hardwood ashes, well sifted. To this may be added any coloring material desired. It is said to be as durable as slate, and to be especially applicable to brickwork and similar surfaces.