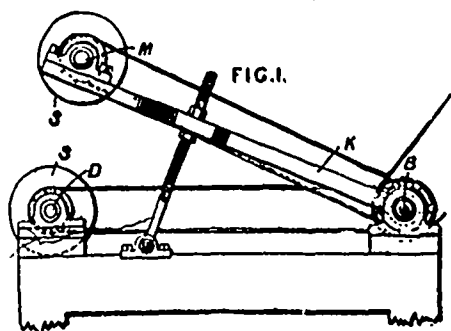


AN ENGLISH PATENT.



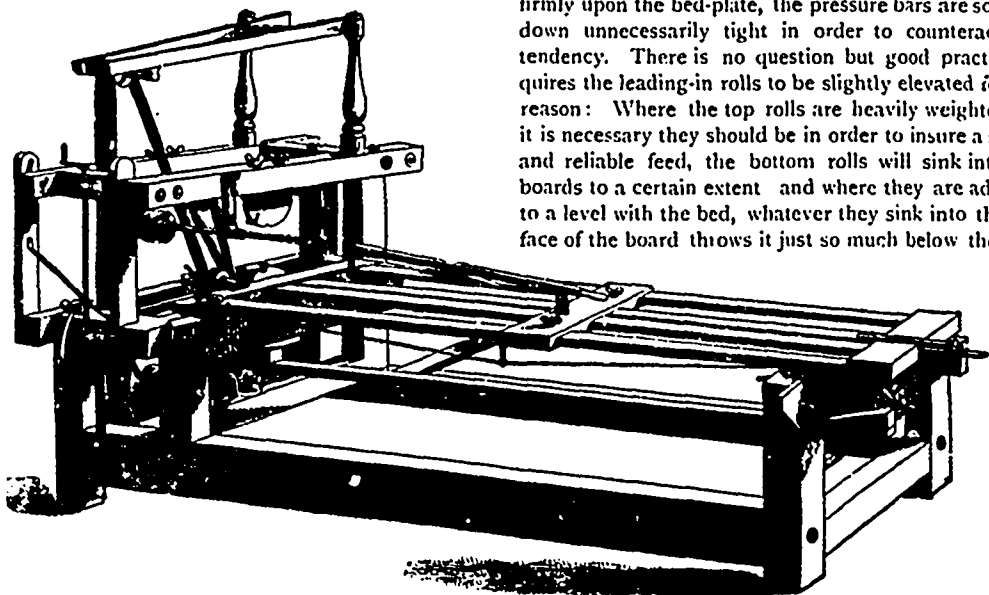
Relates to a machine for sawing, mortising and trenching, and for marking for setting out work. The figure shows an elevation of one form of the apparatus. Adjustable circular saws or cutters S S are fixed on parallel shafts M D worked by driving belts from a third shaft B. The shaft M is carried by brackets on pivoted arms K, which may be adjusted to regulate the distance between the shafts M D between which the wood, &c., is introduced. Many modifications are described, in one of which the shaft D is mounted similarly to the shaft M. Guides and gauges may be arranged for the wood, etc.

TENONING MACHINES—THEN AND NOW.

IT is by taking a glance into the past that we can best learn, oftentimes, how high is our altitude to-day. Let wood-workers look at the two illustrations here given, and they will have some idea, at least, of the progress made in the manufacture of wood-working machinery within less than half a century.

The cut here given of a new tenoning machine, as in operation in many wood-working establishments to-day, stands out in striking contrast to its representative of forty years past.

This tool is used principally for sashes and blinds. The cutter-heads are made small, so that they can be run at great speed and do better work and more of it. The top headstock is adjustable up and down and in and out, and both headstocks can be moved up and down together without changing the thickness of the tenon in the least. The bottom headstock and the main standard are in one piece, gibbed to the inside of the frame, and raised and lowered by a screw. Both top and bottom cutterheads are run by one belt at the



TENONING MACHINE MADE IN 1856.

same speed, and this belt is provided with a self-operating weighted tightener having vertical and horizontal adjustment.

This machine is provided with a combination roller table, greatly facilitating the work both in ease of operation and quantity turned out. In this device the top part of the table travels farther in a given time than the under part, not requiring the extra long ways. The table is secured to ways with safety gibs and stops, so it can not be thrown from the ways or into the knives.

It is perfectly rigid and cannot be thrown or worn out of line. It is provided with a positive hold-down, conveniently and quickly operated, and by which the shortest piece is firmly held in place. The guard and cleaning device avoids chips accumulating on ways. The fence is adjustable to any required angle. The cut-off attachment is adjustable to any length tenon desired (by means of a screw) without stopping, and is run with the same belt as the heads. The machine weighs 900 pounds.

PLANING MILL PRACTICE.

NOTWITHSTANDING all that has been said on the subject of planing mill practice, together with the care and management of wood-working machinery generally, still there seems to be a wide difference of opinion upon certain points even among those who profess to be experts at the business, says a writer in the Age of Steel. Many of those articles which appear in various trade journals from time to time are not only instructive to the young operator, but the hints thrown out may not always be uninteresting to the more experienced man, while on the other hand, others contain points that are of a doubtful character. It is all folly to suppose that one man knows it all and incapable of learning something more, even from an amateur operator, still, the best and the most expert planing mill operators, like the doctors, often disagree.

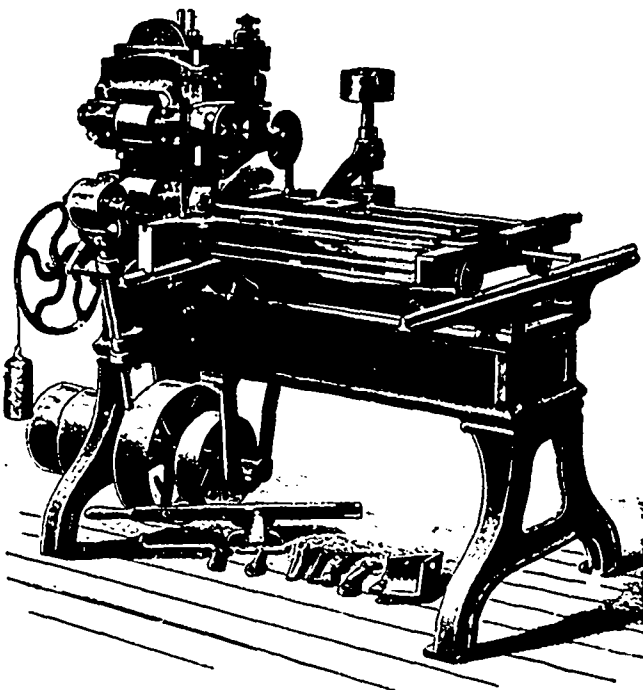
For example, the operator tells us that the bottom leading in rolls of a planing machine should be set upon an exact level with the bed, and attempts to prove his theory correct, while another argues with equal force that they should in all cases be raised from one-eighth to one-quarter of an inch above it. Now, while there is no question that by slightly elevating those rolls over the bed-plate, the machine will feed easier and the lumber will not drag so heavily upon the plank and consequently the wear will be less, not only upon the bedplate but the gearing also. But there is no doubt that this manner is often carried to extremes by some operators. By elevating the rolls too far above the bed, the tendency is to lift the board from it, and as it is essential in order to avoid easy work, that the board should rest firmly upon the bed-plate, the pressure bars are screwed down unnecessarily tight in order to counteract this tendency. There is no question but good practice requires the leading-in rolls to be slightly elevated for this reason: Where the top rolls are heavily weighted, as it is necessary they should be in order to insure a strong and reliable feed, the bottom rolls will sink into the boards to a certain extent and where they are adjusted to a level with the bed, whatever they sink into the surface of the board throws it just so much below the level

of the bed and produces an unnecessary pressure upon it, but in no case will the pressure of the top rolls be sufficient even upon the softest lumber to sink the bottom ones into the lumber one-eighth of an inch, or even a small portion of it.

The careful operator, however, who is a close observer, can always judge from the working of the machine whether the pressure upon the bed is sufficient to cause extra wear and friction, and regulate them accordingly. As a rule, the sinking into the lumber by the bottom

rolls, upon ordinary work amounts to but little, and if a thick piece of paper or tin be placed upon the bed and a straight edge laid upon it, and the bottom rolls raised until they come in contact with the straight edge, it will be found sufficient for all practical purposes.

To say that absolute perfection may be obtained so that all classes of lumber, both hard and soft, may be run with exactly a uniform pressure upon the bed, would be absurd; therefore, as no fixed rule will apply to all cases, the experienced operator must judge for himself from the size of the rolls, the amount of pressure upon them and the nature of the work, just how much elevation is necessary in order that the lumber pass through the machine with as little resistance as possible. As the lumber, after passing the rolls in front of the bed-plate, is already compressed so that the rolls behind the cylin-



TENONING MACHINE, 1895.

der will not sink it to it, there is no necessity of elevating the back rolls, but they should be set level with the bed.

Another point has been frequently referred to, is the amount of allowance for jointing upon the side next to the long guide. Where the groove is run upon this side, it is very important that sufficient margin be allowed for jointing, but the extra amount cannot be governed by any fixed rule, but must be determined by the condition of the lumber, and the good judgment of the operator, and there is no question but a large amount is wasted in some mills by setting the long guide too far back of the stationary matcher head. Where the man at the saw, whether it be a single or double edger, is particular in straightening the stuff, that is, to avoid short crooks, but little margin will be required for that purpose.

In most cases it is customary to allow one-eighth of an inch for this purpose, and under favorable conditions, this is amply sufficient, and all over that is a waste of just so much material. With stock lumber, however, where it is matched as it comes from the yard, the case is different, and short crooks and lumps, especially, where there are knots near the edge, often render it necessary to set the long guide further back so as to allow a greater margin for jointing. Still, it is a question whether it is not more economical to run a few boards a second time than to set the guide back of the matcher head, so as to take off a quarter of an inch, as is frequently the case, whether it is required or not. There is probably no other place in the planing mill where good judgment and economy may be practiced, than at the edging saw. It is customary with many sawyers in ripping up strips for matching, to allow about one-eighth of an inch, but in many cases the strips will be found to measure from one-quarter to three-eighths of an inch wider than there is any necessity for.

Now, if the strip is to be six inches face when matched, there is no necessity for being sawed more than six and one-half inches. This allows three-eighths for the tongue and one-eighth for jointing on the groove side, but more strips will be found to measure six and three-quarters than otherwise and of course all over what is really necessary is so much waste of lumber, and while it may appear to the sawyer a small matter it will amount to many hundreds of feet or even thousands in the course of a year.