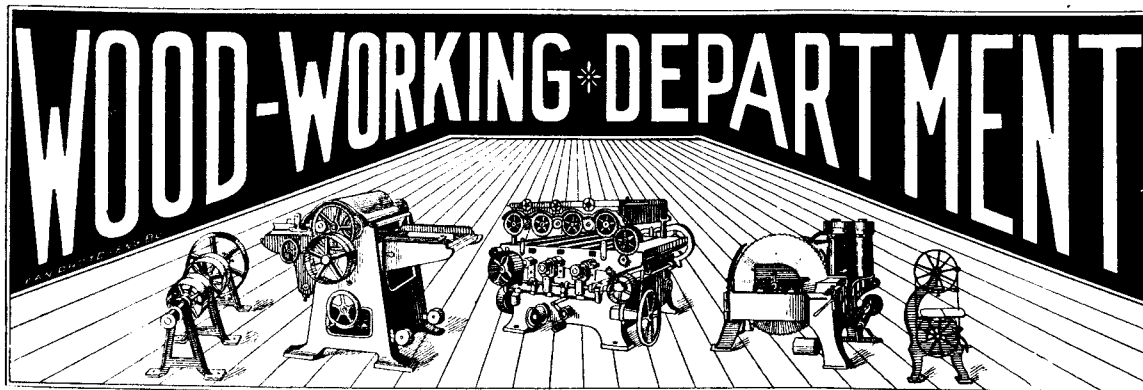




HIGH SPEED HORIZONTAL SAW FRAME.

THE illustration herewith represents the most condensed horizontal saw frame (for working at a high speed) which has hitherto been brought into the market. For years different firms have endeavored to produce a good machine of this class with partial success only, but Messrs. Kershaw Bros. claim to have in this machine accomplished the purpose which has been so much desired. Many representatives of large firms in the timber trade have seen it in actual work and express the opinion that it is the best devised machine for doing the class of work for which it is intended that has ever been brought to the notice of the trade. One great difficulty in putting down this kind of machine up to the present has been the great amount of space required, but in this example this difficulty has to a great extent been overcome, and it may be employed where the saving of space is a consideration. It contains a great improvement in having the driving crank for working the saw placed in a vertical position, which dispenses with all balancing. It also prevents the action of pushing down and lifting up of slide, and thereby considerably reduces the vibration, insures much greater steadiness in working, and enables the machine to be worked at a far greater speed than any other for the class of work for which it is intended. Another most important feature is that it dispenses with all compensating pulleys, thereby keeping the belts at one uniform tension, and saving much expense. The slide carrying the saw is raised and lowered by power (to suit the different thicknesses of boards to be cut), worked from the quick return motion shaft, needing no belt. It can be worked by hand if desired. The feed motion is driven from the vertical crank, and the belts for this never vary, therefore dispensing with compensating pulleys. The machine is entirely self-contained, and all the working parts are brought within easy reach of the operator. The construction of the machine is very simple, and so arranged that it is not liable to get out of order. The machine is well adapted to meet the requirements of cabinet makers, joiners and builders, railway wagon builders, saw mill proprietors and others.

A machine to cut 42-inch logs has just been completed and is in actual operation at the works, Hebden Bridge, Yorkshire, England.

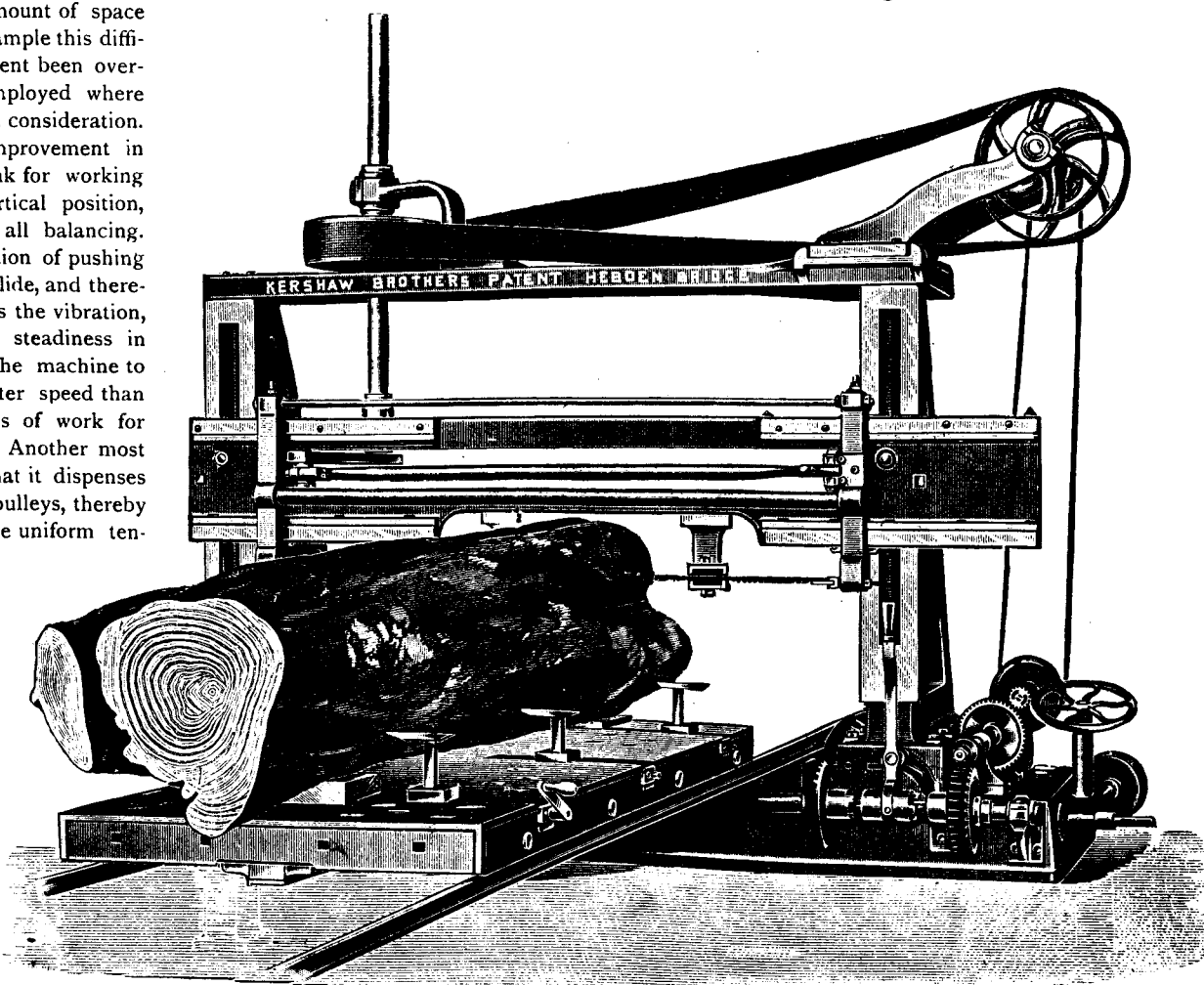
A good engine in charge of a good man rarely requires to be stopped in working hours. When one is stopped frequently it would be a good plan to find out whether it is the engine that is out of order, or the man in charge of it.—The Engineer.

WOOD-WORKERS' LISTS.

BY OWEN B. MAGINNIS.

I HAD intended writing up this subject before, but deferred it, hoping some other better hand than I might take hold of it, as the subject is one of interest and importance to many.

Foremen usually make out lists; that is to say, it devolves on them to pick and count out the number of pieces of stuff of different dimensions which have to be selected, sawn out, and wrought to a finished shape. Some of the more extensive establishments have a draughtsman, who is partly a mechanic, to do this work; but in the average shop it is the foreman's duty, and in this article I will endeavor to lay before him some sug-



HIGH SPEED HORIZONTAL SAW FRAME.

gestions as to how this important matter should be done regularly and methodically.

Most work is made from standard patterns. When working from drawings which are furnished by the architect or designer, the foreman will, in many cases, be required to work out the construction in his own head, to economize the cost of construction, that the forms may come within the scope of the machinery in the mill. In addition to this, it may happen that he may reduce the cost of production by an analysis of the details, thus saving time and labor.

For example, in the trim, sash and door business, much lumber and working may be saved by a foreman who can change construction, and, by a judicious arrangement of the stuff, make the form fully adequate without injuring it. This is especially the case in hard woodwork, which of necessity must be economically

treated, owing to the high price of the material, and where a backing of pine is introduced to lessen the amount of hardwood to be used. When the prices of San Diego or red and white mahogany, quartered oak, cedar, maple, etc., are remembered, it can readily be understood why economical construction is of so much importance in modern wood-work, and how a foreman must treat the construction so as to save the expensive material.

Many foremen redraw the details in the constructive form they judge will be the cheapest to adopt, and by doing this they render them so clear in their own minds that making out the lists is a comparatively easy matter. This may either be done full size on manilla detail paper or on a drawing board, with all dimensions figured, and with the full laying out delineated, giving an elevation, with horizontal and vertical sections. Everything should be clearly shown, in order that a cabinet-maker or a bench-hand may at once grasp the method of putting the whole construction together, when the pieces are wrought by the machines and are brought to his bench. For doors and sash, a laying-out rod, as I once stated in these columns, will be sufficient, with a sketch of the elevation of the constructed detail; but for trim or difficult work, more explanation will be necessary. Laying out in pencil on boards is preferable to paper, because there is no danger of the drawing being torn or dirtied by use. After an experience of some years I would en-

dorse the board, although the paper has the advantage of being easily filed away for future reference; still, when it becomes torn or dirty its usefulness is so much impaired that it is hardly safe to refer to it again. Owing to the continuous handling in the mill, by some wood-workers with not too clean hands, paper working drawings get terribly mused, though they are often essential when the work is too large to lay out on a convenient board. I would suggest that where the board can be adopted, it is preferable.

The foreman having laid the job out in a fully comprehensive manner, the next step is to prepare the lists, and here arises the necessity for another consideration on his part. I refer to over lengths. It will of course be understood that all pieces will require to be slightly longer than their finished lengths, also wider than their finished width, in order that there may be sufficient over

stuff to permit them being worked by the machines. The extra stuff must be gauged by the foreman, and will be determined by his experience and former results; but there must be sufficient to enable each and every wood-worker to shape the pieces to the forms demanded in the layout.

I will take one simple detail of hardwood doors, and endeavor to explain the listing of the stuff necessary to be gotten out for their construction. Supposing one dozen veneered quarter oak doors have to be made to order, and that they are all of the same size, and of the following dimensions:

	Ft.	In.
Width.....	2	8
Height.....	7	0
Thickness.....	0	2
Stiles.....	0	5
Top Rail.....	0	5
Bottom Rail.....	0	11
Inside Rails.....	0	4
Panels.....	0	10 15-16
Thickness of Raised Panels.....	0	1 1/4
Moulding, Raised.....	0	1 1/4

Here we show the whole dimensions of the door