

ally consists of one course of plank, laid transversely to the stringers, and about three inches in thickness. Occasionally two courses are used, in which case it is a good plan to apply to the lower course some of the wood-preservative processes, and the cost of such application can be balanced by using a cheaper grade of timber than would otherwise be proper—such as spruce. If wooden stringers are used, they may also be chemically treated, when the sub-floor can be regarded as measurably permanent, the only renewals being that of the upper hardwood plank, as it becomes worn. When two courses are used, the lower one should be not less than two and a half or three inches in thickness, and the upper two inches, which last, if laid *diagonally* to the lower course, will materially stiffen the floor as a whole. The planking is spiked directly to the stringers, if of wood, with spikes having a length of about double the thickness of the plank. When two courses are used, each course should be spiked down independently. It is not necessary to spike at each stringer intersection, every other one being sufficient; but where spiked, there should be two spikes used, one at either edge of the plank. Where iron stringers are used, the simplest method of securing the floor-plank is to lay a spiking timber on either side of the roadway, and one or more between, to which the planks are fastened in the usual way. This arrangement avoids the necessity of using hook head-bolts, clinch-spikes, and other troublesome devices required if the attachment is made directly to the iron. On either side of