Motors have been made for almost every conceivable method of mounting: floor, wall, ceiling, vertical and even for back gear drive; they have also been used for belt, chain and rope transmission and also gear drive, and in still other cases the motor shaft has been direct coupled to the driven shaft. Motors have been made of the open semi-closed and dustproof types; they have been provided with bronze, babbitt and ball bearings, and have been furnished of 2 and 3 bearing types. For gear driving, 20 h.p. is about the limit for two bearing motors, and there are some cases where even motors of 15 h.p. should be provided with a third bearing in order to properly support the shaft, for as a general rule standard motor shafts are not heavy enough to stand the shocks met with in gear drives.

In actual practice it has been determined by experiment that the friction loss from engine to tool, where the shop is equipped with line shaft drive, ranges from 30 to 60%, and in some cases the losses have exceeded 60%. The losses in transmitting power electrically from engine to tool in the case of a shop equipped with individual motors for each tool seldom exceeds 30%. But of course this is not the only advantage in the case of the individual motor for each tool. Take the case of a machine shop containing a large number of tools at a time, when one wishes to operate only a few tools, the line shaft and friction losses are practically the same as they are when all tools are in use. While in a shop with each tool provided with its own motor these friction losses are entirely eliminated. Then again, in the case of the shop depending upon line shaft drive, if anything goes wrong with the main belt or line shaft, all the tools are put out of service, while in case of tools equipped for motor drive this does not occur.

Even going back to the prime movers in the case of belt transmission and line shaft drive, there is only one avenue of transmitting the power from the engine to the line shaft, where with electric drive there are, as a rule, duplicate units, and if for any reason one set is put out of service, the auxiliary set is always ready to be put into commission.

There is also the advantage in having the generating station composed of several units so that if anything goes wrong with one unit only a portion of the shop may be shut down. Then, too, this is not always necessary, for generating stations will, as a rule, easily carry 25% overload for a couple of hours and thus give sufficient time in some cases to make necessary repairs. It is almost always necessary to run the steam plant at all times for supplying current for lighting and power at some points in close proximity to the shop, and should the occasion arise where some special job has to be taken care of during the time when the shops are not in actual operation. the current is always available for the motor at any desired point. Engine houses and coaling plants which require power and light can be thus supplied without having a power house installed at these points.

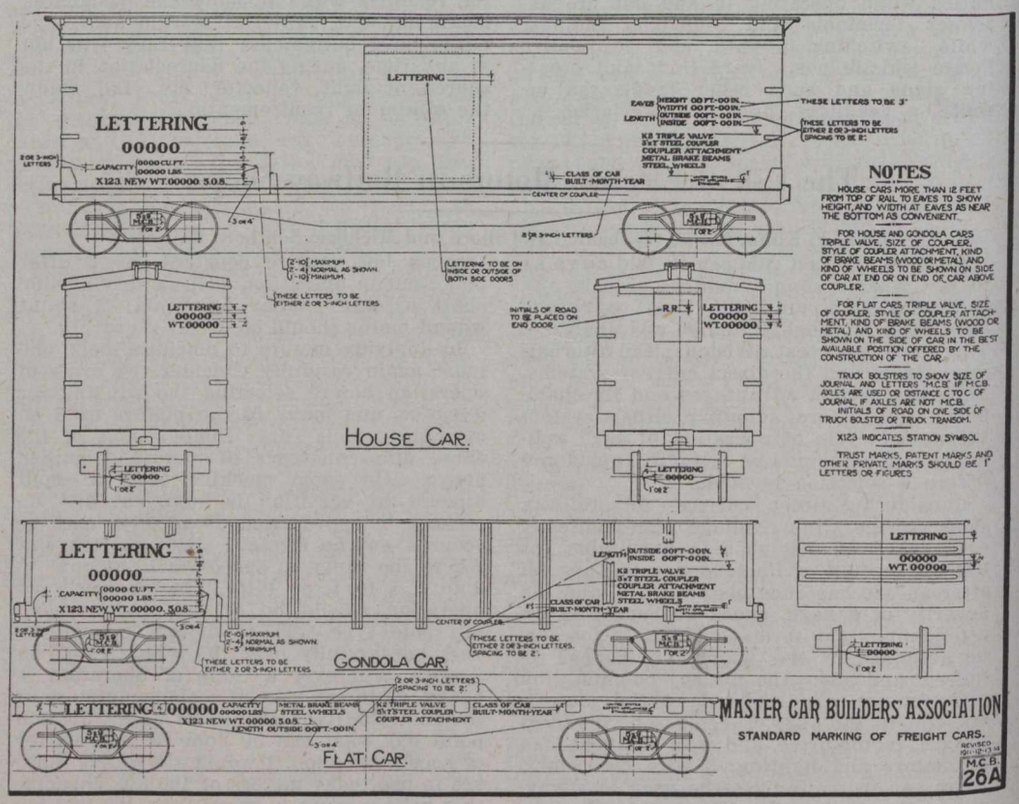
A few years ago, the load factor of railway machine shops was about 19%, and due to the introduction of high speed tool steel and the motor for individual drive the load factor has been raised in some shops to approximately 37%. With the shop equipped with tools for motor drive, the whole shop layout can be rearranged from time to time to suit the various conditions which may arise in the method of handling the different work and also the installing of additional new tools, and it is also possible to take advantage of floor space which in the case of a shop with line shafting it would be impossible to utilize.

A very distinct advantage that the shop equipped with motor operated tools has over the shop operated with line shafts is that the belts and overhead work are done away with, such shops are lighted much more efficiently and a great deal of danger is eliminated. In this day of safety first, the elimination of line shaft and belt drive is something that we all should strive for, and in the revamping and extending of our shops, the question of abandoning line shafts and belts should receive very serious consideration.

Report of Committee on Revision of Standards and Recommended Practice.

The Master Car Builders' committee, T. H. Goodnow, Superintendent of Car Department, Chicago and North Western Ry., chairman, submitted a report, which is abstracted as follows: It is recommended

That: permission to use skeleton wedges on 5 by 9 in. and 5½ by 10 in. journals be withdrawn.



Recommended Standard Marking of Freight Cars.

That the brake chain, instead of being preferably 7-16 in. with a ⅜ in. minimum, be made 7-16 in. alone.

That the rear of the coupler yoke be changed to be formed with a ⅞ in. radius at the inside corners, and fitted with a 1 in. filler block, wrought iron or steel, having 1 in. radius ends, the same to be riveted to the back end of the pocket with a 1¾ in. countersunk rivet.

That the signal lamp socket be approximately 9½ ft. from the top of rail to the bottom of slot, and so located that the axis of the socket is 45 degrees with the centre line of the car. The variation in the clearances of railways, size of markers and lens, etc., makes it impracticable to recommend a fixed location transversely.

That the accompanying sheet, M.C.B. 26A, covers the new marking of freight cars, and that the information as to marking is permissible with the use of metal badge plates, the letters on which to be not less than 1-16 in. in relief and ⅛ in. bar or staff.

That the journal box lid key for the 6 by 11 in. journal box, be the same as for the 5½ by 10 in.

That the journal box, bearing, wedge, lid, journal bearing, wedge gauges and dust guard for the 6 by 11 in. journal be advanced from the status of recommended practice to standard.

That the end for the hopper door operating shaft be advanced in status to standard.

That for cars built after Jan. 1, 1915, with 10 in. air brake cylinders for freight cars weighing between 37,000 and 58,000 lbs. light weight, and triples K-1 for 8 in. and K-2 for 10 in. equipment, be advanced to the status of standard.

That the position of the bolting lugs of the air brake hose at the coupling and at the nipple end, as well as the position of the air brake hose label, be advanced to the status of standard.

That the diameters for 33, 36 and 38 in. steel and steel tired wheels be advanced to the status of standard.

The committee considered 43 suggested changes in recommended practice and standards. Of these, the following disposition was made: Not approved, 9; Secretary instructed to make changes or additions, 12; referred to committee on car wheels, 6; referred to committee on car trucks, 1; referred to committee on loading rules, 1; referred to committee on car construction, 1; referred to committee on specifications for test of materials, 1; referred to committee on train brake and signal equipment, 1; and referred to letter ballot for change in standard or recommended practice, 11. All these latter 11 are briefly abstracted in the foregoing.