

# THE Railway and Marine World

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## THE JUNE RAILWAY MECHANICAL CONVENTIONS.

The two great railway conventions of the year, the American Railway Master Mechanics' Association and the Master Car Builders' Association, were held at Atlantic City, the former on June 14, 15 and 16, and the latter on June 19, 20 and 21. The most important features of these annual conventions are the reports of the standing and special committees, the principal ones of which are given on this and following pages, either in full or in abstract.

### SMOKE PREVENTING DEVICES.

The Master Mechanics committee on smoke preventing devices for firing up locomotives at terminals, E. W. Pratt, Assistant Superintendent of Motive Power, C. and N.W.R., Chicago, Chairman, reported as follows:

On account of the laws and regulations of large cities, relative to the prevention of smoke, your executive committee appointed this committee to collect from the various members such information as might be obtainable with reference to the prevention of smoke during the critical period of time when locomotives are being fired up at terminals. That smoke prevention is extremely difficult at this time is evidenced by the fact that most large cities specifically exempt from violations the smoke emitted from boilers while being fired up. Although only 33 roads replied to your committee's circular of enquiry, among these were included many of the largest companies, and especially those having terminals located within the large cities where the restrictions are most severe; hence we believe this subject has been more thoroughly canvassed than might otherwise appear. The various reports and the experience of the individual members of your committee would lead to the following recommendations:

**BOILER CONDITIONS BEFORE FIRING UP.**—The best results are obtained by filling up locomotive boilers with hot water previous to firing up; the temperatures reported varying from 110° F. to over 200° F., the higher being preferred on account of aiding combustion and lessening the time required to raise steam in the boiler. Where hot water is not available, the temperature of water in the boiler may be raised by injecting live steam below the water line; but on account of the loss of time, the heating of the water, either before or while the boiler is being filled is recommended.

**INDUCED DRAFT.**—Two roads reported the use of large fans, connected with the smoke jacks above the roundhouse roof, as a means for producing draft. One of these roads advises that this device was used and tested for a considerable length of time, but was found unsatisfactory and abandoned. The other road is still experimenting along this

plan in connection with a "smoke-washer," and is not yet ready to report upon its results, except as to its difficulty in the maintenance of the plant—the metal parts having been eaten out several times during the year's experiments. All other roads report the use of a roundhouse steam blower and the locomotive blower used exclusively.

**METHODS OF FIRING UP.**—From the reports it would appear that almost every combination of wood, fuel, oil, shavings, cobs, coke and bituminous coal had been used, with more serious objections to

employed for kindling fires than any other fuel where the greatest effort is being made to prevent smoke at such times.

**APPLY BITUMINOUS COAL CAREFULLY.**—The plan of raising steam to nearly working pressure by means of wood or coke alone has been tried by many roads, but abandoned when it was found that the same results could be obtained by adding bituminous coal carefully to wood fire after the temperature in the fire-box had been somewhat raised.

In general the conclusion is that although there are many devices for reducing the amount of smoke from locomotives after steam is raised and engines are working, and while it is possible by great care and attention on the part of the roundhouse force to tend during this period, at the same time, we find no practical way to reduce the amount of smoke emitted entirely eliminate all smoke while firing up locomotives at terminals.

### BEST CONSTRUCTION OF LOCOMOTIVE FRAMES.

Following is an abstract of the Master Mechanics Committee, H. T. Bentley, Assistant Superintendent Motive Power, C. and N.W.R., Chicago, Chairman.

At the convention of 1904 this subject was very ably handled by a strong committee, and in reading over the reports we find we are traveling over much the same road as they did, and notwithstanding the great increase in size of locomotives, the committee's recommendations still hold good and the frames still break. Cast steel, made to a rational specification, careful foundry manipulation, adequate and suitable annealing, was spoken of as one of the remedies for frame breakages at that time, and it still is the favorite material, if properly designed, made and annealed. The clip binder was then, and is now, more used than probably any other type, the bolt and thimble style having been discarded in modern practice, owing to stretch of bolts. The specifications suggested by the committee of steel-casting manufacturers, and submitted to the Association in 1904, are as follows:

Material, Acid open-hearth steel, .28 carbon, .05 phosphorus, .05 sulphur, .60 manganese.

Frames will be rejected that show: Less than .20 or over .35 carbon; over .06 phosphorus; over .06 sulphur; over .70 manganese.

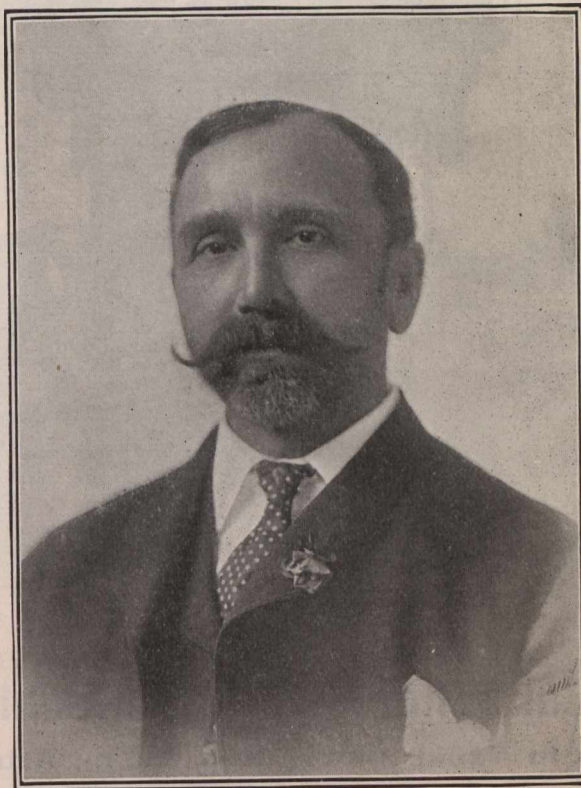
Tensile strength per square inch, not less than 55,000 lbs.

Elongation in 2 inches, not less than 15%.

All frames to be annealed.

After seven years it would be interesting to learn from the members if these specifications are entirely satisfactory, or, if not, what changes should be made to make them so.

While the breakage of a frame is a serious handicap, especially during busy



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some than others. Several roads reported extensive trials of coke, but its use has been almost entirely abandoned because the ashes and gases emitted from the smoke jacks are much more objectionable than smoke when roundhouses are located near viaducts or high buildings; furthermore, it is almost impossible for employes to work in the roundhouse when engines have to be moved from under the smoke jacks to do necessary work, and also the cost of coke is greatly in excess of other fuels in most sections of this country. While the smoke from wood varies considerably in accordance with the size, quality and amount used, still it is more generally