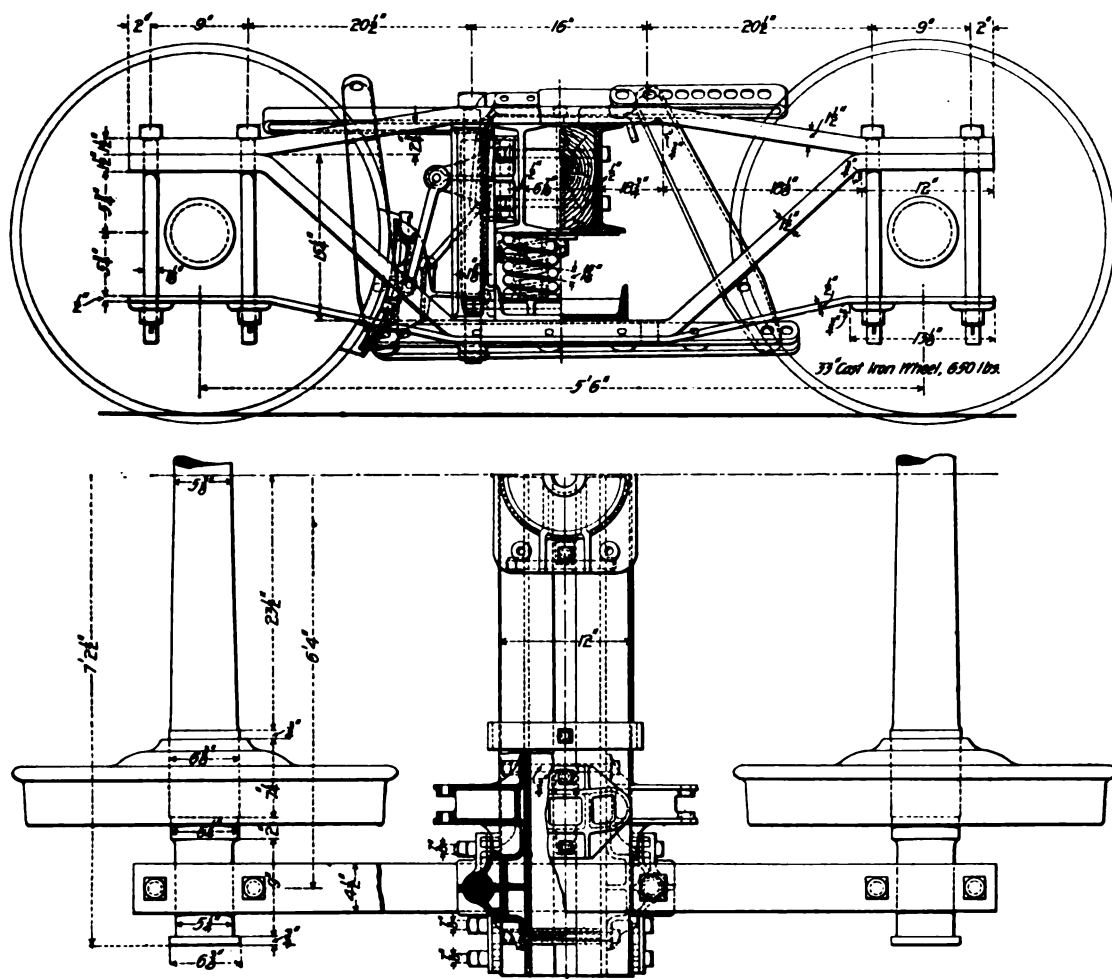


bill was defeated on the main argument that it imposed too much on the trolleys, besides being of doubtful constitutionality; the second measure had, from the first, no chance against the fiscal argument for the small towns; but, for the third bill, after an unfavorable committee report, there was substituted a measure giving half fare to school children during certain hours on all the trolley roads in the State. The fact that this measure passed the House by a great majority and required strong trolley "influence" in the Senate to defeat it suggests strikingly the new phase of popular temper. Popular dis-

avoiding hereafter in the rapid merger of branch roads complex questions of taxation that might arise in a State where the ratio "the length of road lying in this State bears to the entire length of said road" with a special proviso for branch line taxation, is made the basis of assessment.

An act exempting all electric roads from the operation of the Sunday laws clears up ambiguities in regard to the third rail and two new statutes provide for expediting possession and acquiring full title of realty in condemnation cases. Under another statute valuation for purposes of taxation of railroads,

ally with the third rail. The steam companies in the State, by the natural growth of communities and increased freight traffic, have more than made good the earlier losses by local competition of the trolleys. Finally an era of trolley consolidation has begun in Connecticut and the history of the steam roads will probably, within somewhat narrower limits, be repeated. As an isolated but striking fact may be noted the coming sale under receivership proceedings of the Hartford & West Hartford street railroad—the first and only one of some thirty operated trolley roads of the State to go into bankruptcy and, oddly



Truck for Norfolk & Western 100,000 Lbs. Capacity Hopper Car.

content is also revealed outside of the Legislature. The general street railroad law gives the mayors, courts of common council, boards of selectmen and wardens and burgesses large powers over trolley extensions, locations, fixtures and grades. This offers the municipalities an opportunity to demand concessions or the abatement of trolley burdens on the public, real or alleged, as the price of assent to trolley plans. Such a demand is now becoming the rule rather than the exception, with two results—on the one hand some concession by trolley corporations to public convenience; on the other considerable restraint on trolley expansion. In a wider sense what may be called the urban movement in the state for local taxation of the trolleys marks another of those divergences of the interests of large and small towns which may ultimately be a lever of constitutional change and the extinction of the Connecticut "town rule" system. Before closing this branch of the subject it may, perhaps, be worth noting that in many matters of general street railroad legislation the interests of the Consolidated company, as the owner of two street railroad systems, and the interests of the trolleys, are identical—saying nothing of the relation of the third rail to law making.

Bills passed relating to steam railroad companies have been of considerable importance, foremost among them being a new and liberal Sunday train law. Under a measure passed in 1887 Sunday railroad trains had been much restricted and the "necessity and mercy" clause pretty rigidly enforced between the "church hours" of 10.30 A. M. and 3 P. M., though somewhat relaxed of late years in regard to freight trains. Attempts to modify the stringent Sunday train act had been resisted successfully by the Sabbatarian, whose influence had been especially powerful in the lower legislative house. But in the session of 1899 the opposition suddenly fell away and by large majorities there was passed through both houses a bill giving the Connecticut Railroad Commission in effect discretionary power over the whole subject. Under the new act three Sunday passenger trains have already been authorized by the Commission and, while there may be for years to come, some restriction, the demands of public convenience and necessity will be abundantly satisfied.

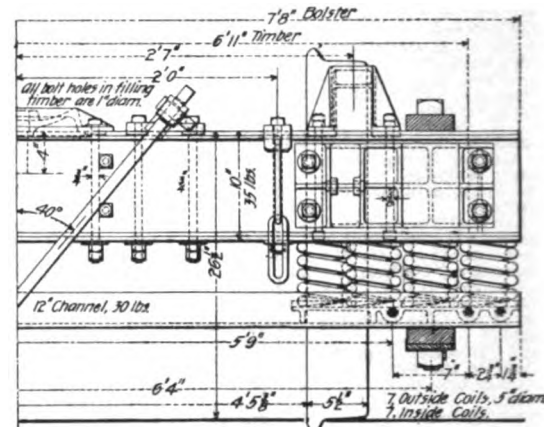
Another important law defines the trunk line of the Consolidated Railroad Company as reaching from Woodlawn Junction, N. Y., to Providence, R. I., and from New Haven to Springfield, Mass.—thus

instead of being fixed on September 30 of each year, as under the old law, must be the average of closing and bid prices for stock during twelve consecutive months preceding the time named for making returns to the State board, which lays the assessment.

Years ago a former President of the Consolidated Company successfully lumped as "cash items," for deduction from the taxable valuation of the road, coal and other supplies on hand, and the State lost a large sum in taxes. The Connecticut Supreme Court rendered a decision against the policy of the company and the "cash deduction" law was repealed. It was renewed at the last legislative session in a bill, at first allowing the railroad corporations to deduct cash on hand from the general valuation, afterwards amended so as to legalize its deduction from the floating debt—on the reasoning, evidently sound, that net rather than gross floating debt is the equitable object of taxation. The Governor vetoed the bill in a long message, some of the economic propositions of which will hardly stand analysis. The veto was sustained. Under the existing system, to dodge the law, railroad corporations obviously need only use cash on hand to reduce floating debt temporarily just before returning the debt for taxation.

The old finding of the Supreme Court in the matter was in a "Goodwin" suit and no review of the legislative session is adequate without reference to the death, after thirty years of conflict with the Consolidated Company, in legislature, at stockholders' meetings and in the courts, of Mr. Henry L. Goodwin of East Hartford. His personality was a strange and composite one, sometimes misled by judgment, never by insincerity. With the passing of the veteran railroad fighter goes a picturesque and, in some respects, a very strong civic figure in the commonwealth, not inaptly described as an Attorney General-at-large for the people, with no salary and few thanks.

The adjournment of the Legislature of 1899 leaves the general railroad situation in the State with certain clearly outlined characteristics. Public feeling toward the steam companies is kindly, largely as the result of reduction of fares, as the Consolidated Corporation merges formally new lines already under its control. Public feeling toward the trolleys, on the other hand, grows severe and critical, and there are hints in a future not remote of enforced reduction of fares and sharper regulation of the electric railroad companies. The progress, so long baffled, of the trolleys toward inter-urban connections goes on slowly, but steadily, with acute probabilities of later riv-

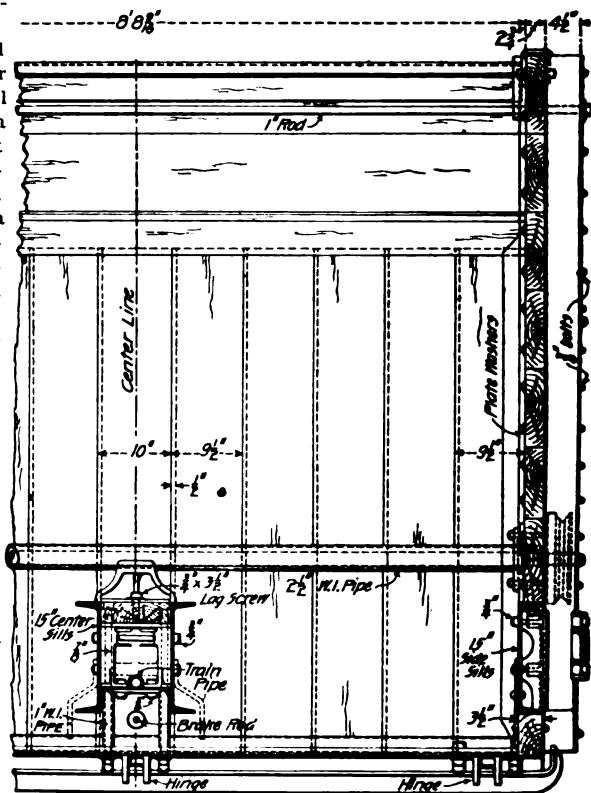


enough, one with all of its \$247,000 of original stock honestly "issued as cash," and \$227,000 of it held in Connecticut.

#### New 100,000 Lbs. Capacity Coal Cars of the Norfolk & Western.

The Mechanical Department of the Norfolk & Western has designed an interesting hopper bottom coal car of 100,000 lbs. capacity, with a steel underframe, which we illustrate through the courtesy of Mr. W. H. Lewis, Superintendent of Motive Power of the road. A sample car of this design has been completed, and when fully loaded the sills were found to deflect less than  $\frac{1}{4}$  in., or about what was anticipated; the sills were calculated to have maximum fibre stresses of less than 12,000 lbs. per sq. in. The sample car has proved so satisfactory that material has now been ordered for 1,000 of these cars, which will be built at the Roanoke shops. It is expected that the weight will be about 38,000 lbs., and by reference to the drawings it will be seen that the length over buffer blocks is 34 ft. 6 in., the width over side stakes 9 ft. 11  $\frac{1}{2}$  in., the inside length and width are respectively 30 ft. 9 in. and 8 ft. 8  $\frac{1}{2}$  in., and the distance from the bottom of the hopper to the top of the sides is 7 ft. 11 in.

The chief object of the design was to make a plain, strong construction, suitable for continuous service where the traffic conditions are very exacting. Com-



Cross-Section near Center of Car.

mercial shapes of structural steel have been used throughout, and special sizes avoided, so that all the material can be bought in the open market, and repairs made with material from the general stock.

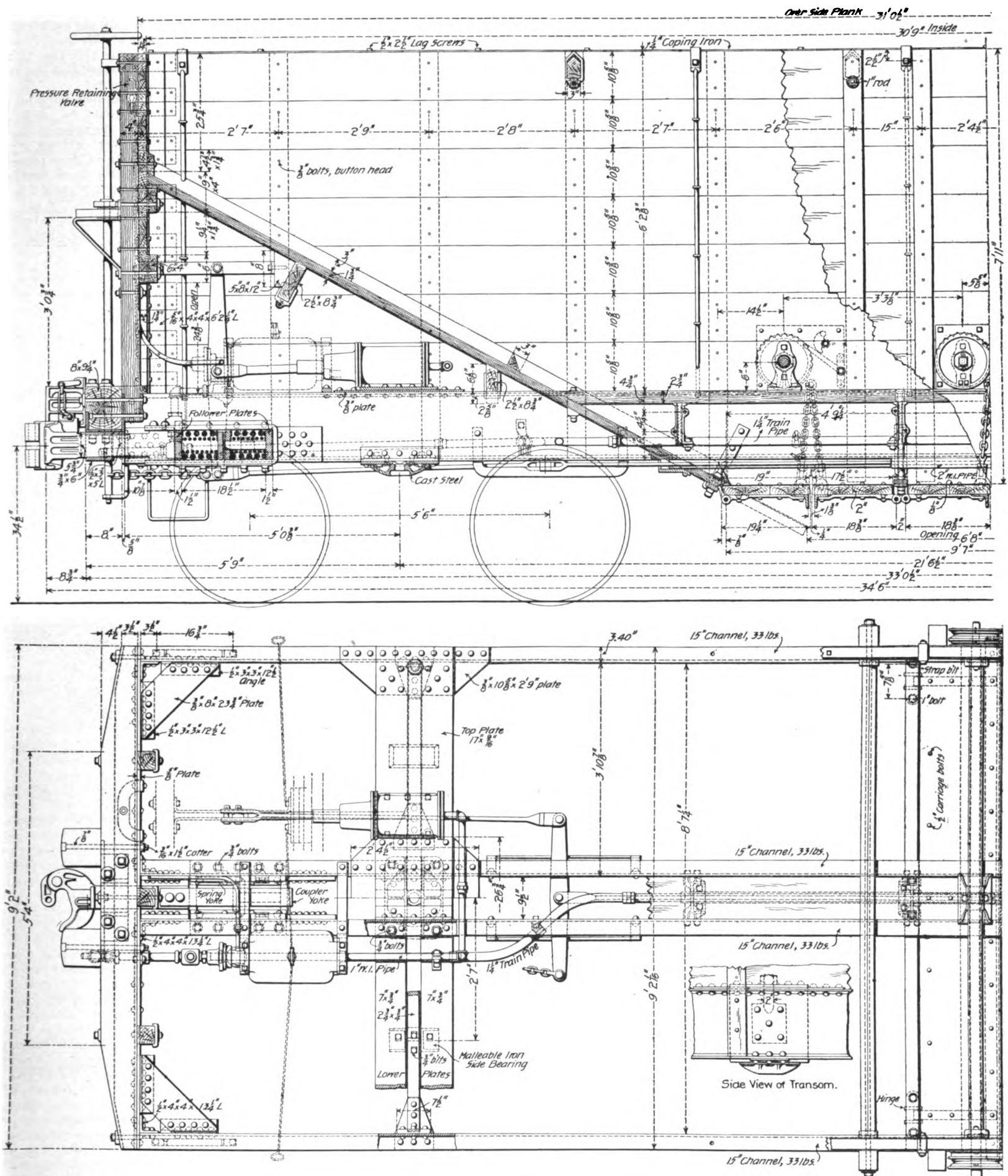
It will be seen that the underframe consists of four 15 in., 33 lbs. steel channels, two being center and two side sills, which are joined at either end by  $\frac{5}{8}$  in. steel plates, and 5 ft.  $\frac{3}{8}$  in. from the ends by plate transoms. There are no cross-ties between the body bolsters except those belonging to the hopper construction. All the sills are joined to the end plates by vertical angles, and in addition to these

there are  $\frac{3}{4}$  x 8 in. gusset plates, at the outer corners of the frame, riveted to shelf angles. The center sills are securely tied together throughout their length by iron space blocks, which also support the airbrake train pipe and form a protection for the top rod of the foundation brakes. The tops of these sills are also connected at the transoms by wide  $\frac{3}{4}$  in. cover plates, above which are the top transom plates,  $\frac{1}{2}$  x 17 in., which at the ends are riveted to the tops of the side sills and the lower transom plates through  $\frac{3}{4}$  in. gusset plates. There are two lower plates of each transom,  $\frac{3}{4}$  x 7 in., passing beneath the center sills. These are spaced 3 in. apart, be-

The wooden hopper is of the drop bottom type, standard in the other classes of equipment on the Norfolk & Western, except that three sets of doors are used. All chains for handling the doors are on the outside, away from possibility of damage in unloading; they can be operated from either side, the chain sheaves being mounted on heavy shafts extending across the car. These shafts are protected by  $2\frac{1}{2}$  in. pipes, which serve also as cross-ties for the hopper. The cross pieces to which the doors are attached also assist as bottom ties. The top ties are four 1 in. rods with wooden thrust timbers, all protected by angle irons. The hopper side and end

long bearing on the columns, and seven double coil springs are used at either end. The wheels weigh 650 lbs., and the axles are  $5\frac{1}{2}$  in. in diameter at the center, with  $5\frac{1}{4}$  x 9 in. journals. M. C. B. standards for a 5 x 9 in. journal are followed in the matter of journal boxes, bearings and wedge, excepting as to the diameter of the journal. As these cars will not be used in interchange, and no standards having been established for 100,000 lbs. capacity axles and journals, the Norfolk & Western has used such proportions as experience and experiment seem to justify.

With the new hopper bottom cars to be built at



Hopper Bottom Gondola Car, 100,000 Lbs. Capacity—Norfolk & Western Railway.

tween which a tension member,  $\frac{3}{4}$  x  $2\frac{1}{2}$  in., extends from the bottom of each side sill to the under side of the top plate near the center sills; the malleable iron side bearings are placed at the crossing of the tension members and the lower plates, and are bolted to all three, as shown in the plan of the framing. To transmit the load from the side sills to the top plate of the transom, steel castings are riveted to the webs of the channels, ending in 2 in. round sections that pass up through the transom plates and carry nuts. In this way the rivets in the end transom connections are only depended upon to resist shearing forces. The center plates are steel castings, and also act as ties for the center sills.

boards are  $2\frac{3}{4}$  in. thick, and the hopper bottoms are  $1\frac{1}{4}$  in. oak. The side stakes are proportioned to prevent bulging, and are well secured to the sills and hopper sides, as shown. The draft gear acts directly on the center sills, tandem springs being used, and so arranged that both springs act together under forces in either direction.

The details of the diamond frame truck used with these cars are shown by the engravings. The wheel base is 5 ft. 6 in., the upper and lower arch bars are  $1\frac{1}{2}$  x  $4\frac{1}{2}$  in., and the tie bar  $\frac{1}{2}$  x  $4\frac{1}{2}$  in. steel, while the truck bolster consists of two 10 in., 35 lbs. steel I beams, with iron space blocks between. The spring plank is a 12 in., 30 lbs. channel, with an unusually

Roanoke, Westinghouse air brakes and steel brake-beams designed by the Norfolk & Western will be used, and equal numbers of Chicago, Tower, Buckeye and Hein couplers will be used, in order to test the different makes for this class of service.

#### Central Association of Railroad Officers.

At the meeting of this Association in St. Louis, July 18, Mr. W. J. Murphy, Superintendent of the Cincinnati Division of the Cincinnati, New Orleans & Texas Pacific, read a paper describing the use of the electric train staff on his road near Cincinnati. He uses the divided staff, one half being given to