

fect type of condensing equipment for this service, which has led to the production of improved types of independent air and hot-well pumps, separate circulating pumps, air coolers, etc.

New York Central & Hudson River Railroad.—The Passenger Department of the New York Central has just issued No. 36 of its "Four-Track Series." It is entitled "The Winter Boarder," and gives a list of more than one thousand hotels and boarding houses in all parts of the country, giving the name and address of the proprietor, the number of people the house can accommodate, its rates per day and per week.

This booklet covers the country quite generally from New York to the Pacific Coast, including the Adirondack Mountains, Canada, Colorado, Utah, Arizona, New Mexico, Texas, California, Washington and Oregon, and also includes the Hawaiian Islands.

Direct Current Motors.—The Westinghouse Mfg. Co., Pittsburg, Pa., sends a pamphlet descriptive of its type S motors for direct current circuits. A brief discussion of the advantages of electric drive is given as well as illustrations of the motor as applied to various classes of work.

Rope.—C. W. Hunt Company, West New Brighton, Staten Island, N. Y., sends a folder descriptive of its "Stevadore" rope. The sizes of this rope kept in stock and the approximate price per 100 ft. are given, as well as names and illustrations of 29 different kinds of knots.

Rock and Ore Breakers.—Allis-Chalmers Company, Milwaukee, Wis., sends a catalogue descriptive of its style "K" Gates rock and ore breaker. It is handsomely illustrated throughout with half-tones and a full detailed description of the machine is given.

CONTRIBUTIONS

Compulsory Block Signaling.

New York, Dec. 19, 1904.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The Interstate Commerce Commission has repeatedly asked for the enactment of a Federal law, which would compel the railroads to protect their lines by block signals, and the President has recommended such an act. The Railroad Commissioners of some of the states, and various state officials, have also urged compulsory block signaling. The distressing list of accidents for the last year or two has given new force to this movement. Some expert observers at Washington think that no Federal legislation for block signaling will be had this winter; but they may be mistaken, and it will be wonderful if there is no such legislation in some of the states.

In times past I have expressed the opinion that a Federal Act to compel the railroads to signal their tracks, would be unconstitutional, and I have always expressed the opinion that either Federal or State legislation would be inexpedient and unfortunate. I still hold those opinions, and for certain special reasons, a few of your readers may be interested to know why. At least I may provoke discussion that will lead towards the formation of correct opinion.

We must assume that the President and the Commissioners have taken legal opinion; and it may seem impertinent to raise the constitutional question. Yet, an act to control signals by Federal power seems a plain invasion of the rights of the states. The constitutional right of Congress to regulate

commerce between the states has been made to cover power brakes and automatic couplers, and it is assumed that by analogy it should cover block signals; but there is no real analogy. A brake or a coupler cannot be changed at the state line, but continues to operate throughout the entire journey of the car engaged in inter-state commerce. Congress, by its constitutional right to regulate commerce between the states, may say that a car starting in Pennsylvania must be made safe for its journey through New Jersey and into New York. At least, Congress has said so, and most of our fellow citizens acquiesce. But the safety of a car moving across New Jersey is not a bit affected by the presence or absence of signals in Pennsylvania. It is said that the car in Pennsylvania carries passengers or things destined for New Jersey, and is doing inter-state commerce; hence its safety in Pennsylvania may properly come under the care of the general government. This doctrine is inadmissible if we are to keep the scheme of a federated society, under which we started, and which we have been taught from childhood is the most perfect form of government that the mind of man ever devised or carried into action. If Congress, in the exercise of its power to regulate commerce between the states, may enter a state to prescribe one fixture on the soil of that state, it may invade the state to prescribe another. It may require that switches be interlocked and signaled. It may scrutinize tracks and bridges and fix standards of construction and maintenance. These are elements of safety no less important than block signals. But what shall we do if the opinion of the people of Massachusetts or of the people of Indiana, as expressed through their legislature, differs from the opinion of the nation, as expressed through Congress?

It must be the duty of the state to protect the people traveling within its borders, and to deliver them safely at the state line, and until the state government breaks down the Federal government has no right to interfere. This seems to me to sum up the Federal situation in the matter of block signals, but I cannot pretend to be a constitutional lawyer, or any other kind of a lawyer, and I have probably missed the point.

If the Federal Congress has no right to invade the states, and order block signals to be placed on their soil, at least the states themselves may require block signals within their respective borders. But the expediency of this is at least questionable.

Block signals are only one element of safety. Many people are killed and injured for lack of interlocking; many others are killed and injured in derailments due to bad track; and still other casualties are due to inadequate bridges. Much of the greatest mortality on railroads is among trespassers on the right-of-way, and among careless passers at highway crossings. If the state begins the protection of people on the railroads, where shall it stop? Surely it should not stop short of the control of interlocking and of permanent way and structures; and it should not stop short of protecting railroads against trespassers, and trespassers against themselves. But this is only the beginning of state control. It is a commonplace that signals will not be displayed or obeyed without discipline and that track and structures will not be maintained without discipline, but there is great reason to believe that to a gradual let-down of discipline, more than to all other causes, is due that increase of accidents which has alarmed the public; and there are many railroad officers who hold, whether correctly or not, that this let-down of discipline is principally due to the influence of the unions. If then, the state is going to step in and prescribe

means of safety, it cannot with propriety overlook discipline and the agencies which are acting to undermine it. Back of all is the General Manager with his superintendents. If these gentlemen are incompetent, no expenditure for safety appliances, no precautions designed to improve discipline, will be of much use. The state must extend its control to the superior officers of the railroads, and insure their fitness for the great responsibilities of their posts.

In short, there is no logical stopping place this side of that complete control of railroads which has been so thoroughly and admirably put in practice in Germany, and five minutes of reflection will satisfy any one but a confirmed socialist, that for such a degree of state control, we are entirely unfitted by habit, by temperament, and by social and political organization and methods. We, like the English, are accustomed to meet our emergencies as they arise. Perhaps we might profitably do as the English have done, and attempt some control with an arbitrary line far short of complete state control of the railroads. But it is my fixed belief that the more liberty we leave to the railroads, the more efficient and economical service we shall get. That is the great lesson of the history of railroad development in our land. On the other hand, the present disposition of the people indicates that if the railroads would retain that liberty, they must deserve it.

H. G. PROUT.

The following statement about the existing status of the desired legislation in connection with the proposed American Railway Appliance Exhibition in connection with the International Railway Congress, is made by Mr. Geo. A. Post, Chairman:

There was no quorum in the House of Representatives on Monday last, owing to the near approach of the holiday recess and the absence of a large majority of its members. Congressman J. R. Mann, of Chicago, continued his vehement opposition to our resolution and compelled the postponement of consideration until Jan. 9, 1905, when a quorum is assured. There is no doubt that the resolution will be adopted when it is considered by the full house, but Mr. Mann has been able to defeat our efforts to obtain the quick action so greatly desired, in the absence of a quorum, because of the power given under the rules of the House to a single representative to block legislation until a quorum is present. Monday, Jan. 9, is District of Columbia Day in the House, and on that day the Committee on the District of Columbia having charge of our resolution will call it up for action in regular order. I believe that there is no occasion for uneasiness on the part of those interested in our proposed exhibition regarding the ultimate result in Congress.

Single-Track Blocking Discussed at N. Y. Railroad Club.

The subject for discussion before the New York Railroad Club at its meeting of December 16 was the "Theory and Practice of Single-track Blocking," a paper on the subject being read by Mr. H. D. Emerson, a civil engineer and newspaper writer. The first part of Mr. Emerson's paper was a dissertation on the difficulties of running trains on single-track lines without the block system, showing the dangers of the American train-despatching method. Coming to his principal subject, he first took up Tyer's tablet, and next the electric train staff. In speaking of the staff he presented a letter from Mr. Sperry describing briefly the operation of the Union staff instrument, and one from

Mr. Short, of the Cincinnati, New Orleans & Texas Pacific, telling of the experience of that road with automatic signals and with the staff. Mr. Short makes the statement, which has been published before, that the automatic block signals on his road have increased the capacity of the line 75 per cent. at night and 50 per cent. in the daytime. He says that the cost of installing Hall electro-gas signals on single-track, at intervals of 1 1/2 miles, is \$850. This, we suppose, includes the cost of two signals, and means the cost per block, not the cost per mile. The maintenance per year is \$131.20. For the Union electro-gas signal he gives for the same equipment \$720 cost, and \$124.90 maintenance. With the automatic signals on this road, the time-table and train despatcher are still supreme, and the fixed signals are an auxiliary; but on the short sections where the electric train staff is used, the time-table and the train despatcher's authority are suspended, the staff being supreme. On these sections the capacity of the line has been increased from 35 per cent. to 40 per cent. The C., N. O. & T. P. is operated as follows:

By automatic signals	298.2 miles.
Telegraph block system	18.1 "
Electrical train staff	13.1 "
Yards, not signaled	5.6 "
Total	335.0 miles.

That part of the paper which deals with the train staff contains a brief account of the method of operation of the Union Switch & Signal Company's latest design, which is described in another column of this issue of the *Railroad Gazette*.

The discussion on this paper was opened by Mr. W. G. Besler, General Manager of the Central of New Jersey, who pointed out a number of erroneous conclusions in it concerning the train despatching system. He did not, however, discuss the main fact that on single-track railroads worked by the train staff the collision record is greatly reduced,

and the capacity of the road increased. Mr. Besler read from a prepared paper, and beyond this there was little discussion. The common train staff, as used in England for nearly half a century, is in use on an electric road in Canada, and has been used at one place on the surface street railroads of Brooklyn, N. Y. Reference to these incidents brought out commendatory remarks concerning the efficacy of a "stick"; and Mr. Sperry, being called upon after the other speakers had finished, summarized the situation by saying that, as Mr. Emerson had shown that the staff system was the safest method of operating single-track, and as the use of the "stick" had been advocated partly on the ground of the recent approval of a "big stick" policy by the President of the United States, the railroads would do well to heed the fact that the said President is now "after the railroads with a big stick."

Omaha Freight Terminal of the Chicago Great Western.

The Chicago Great Western has had its Omaha line in service for about a year and a half, although up to the present it has been without terminal facilities of its own in that city. It enters Omaha over the Union Pacific's Missouri river bridge and has been using the Union Pacific terminals, both freight and passenger. It also has in addition, the use of the Union Pacific tracks as far as the Omaha stockyards in the southwestern part of the city. Its use of the passenger station will continue indefinitely,

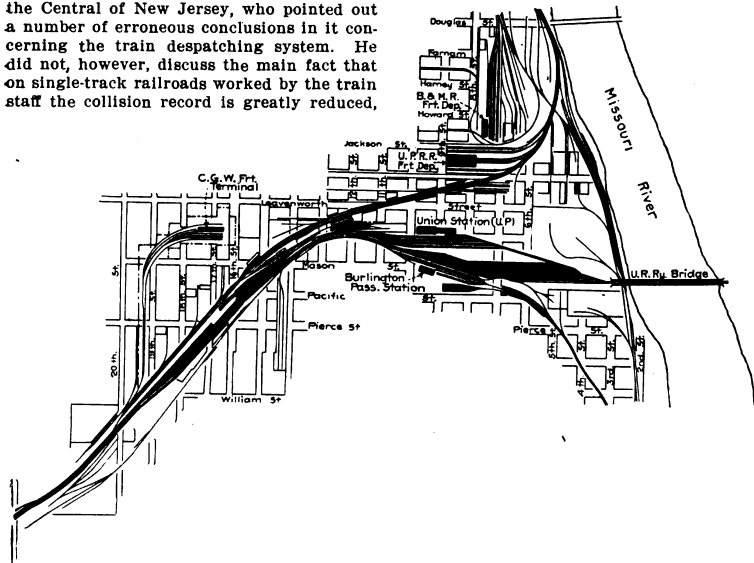
but since its entrance to the city the Great Western has been engaged in the acquirement of land for, and the construction of freight terminals, which have just been completed and put in service.

The accompanying map shows that part of Omaha adjacent to the Great Western terminal property. The business district of the city lies directly north of, and only a few squares distant from, the freight house, its location being therefore an excellent one from this standpoint. The site was an expensive one, however, as nearly all of the land was improved property and its cost constituted a large part of the outlay for the terminal. The connecting tracks to the yard leave the Union Pacific near Twentieth street, crossing the low-lying industry tracks of the latter on a pile bridge 400 ft. long. This bridge is indicated on the condensed profile shown, which gives a good idea of the conformation of the land along the route of the connecting tracks, and on the terminal site. It will be seen that the principal part of the yard lies in a heavy cut. The grading at this point amounted to more than 150,000 yds., the material being used to fill in from Sixteenth street to beyond Seventeenth street.

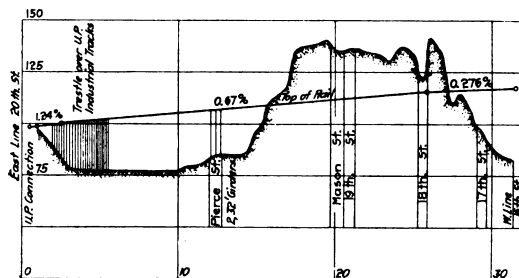
Pierce street is crossed on a double-track steel-girder bridge with concrete abutments. At Mason street, two blocks north, the excavation for the yard approaches reaches a depth of 30 ft. and street traffic is carried across on a wooden bridge. With the exception of these two crossings, all other streets leading across the yards and tracks have been vacated by the city. On Seventeenth, Eighteenth and Nineteenth streets, the city sewers and the pipes belonging to the gas and water companies had to be lowered at considerable expense, in order to carry them under the tracks.

It will be noticed that the Great Western property extends up to, and fronts on Sixteenth street. This street crosses the bottoms and the Union Pacific tracks on a steel viaduct which is 50 ft. high at its highest point. It was the desire of the Great Western, at the outset, to have the principal entrance to the terminal from this viaduct, with which it is on a level, but this privilege was denied the road by the city. Instead, therefore, that part of Sixteenth street lying between the viaduct and the property lines on the west side was raised to the level of the former by grading; level-grade entrances from Leavenworth street are therefore provided on both Sixteenth and Seventeenth streets. Teams have access to the team tracks from both sides of the yards on Eighteenth street and from the north side on Sixteenth and Seventeenth streets.

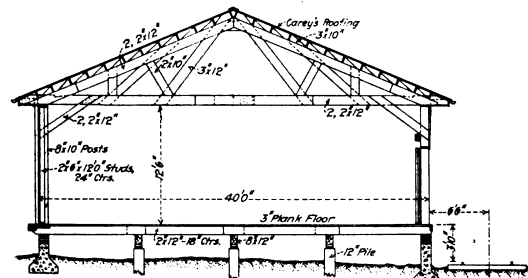
The general construction of the freight house is shown in the illustrations. As the filling under a part of the house was about 30 ft. deep, it was thought advisable, in order to avoid the costly foundations necessary for a permanent structure, to build a frame house for the present, without carry-



Map of Business Section of Omaha, Showing Chicago Great Western Freight Terminals.



Condensed Profile of Approach to Freight Terminal.



Cross-Section of Chicago Great Western Freight House.