



FRIDAY, NOV. 24, 1893

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Contributions.

The Safe Method of Making Meeting Points.

Nov. 15, 1893.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of Nov. 3, "Accidents for September," I note nine butting collisions through "mistakes in orders." Of these, three seem to be worse than others, viz., at Colehour, on the Pennsylvania; at Leipsic Junction, on the New York, Chicago & St. Louis, and Norwood, on the Rome, Watertown & Ogdensburg. All three lines use the perfected (f) standard code and yet these accidents are possible. Rule 510 says that the ruling train's understanding must be obtained [when practicable] before moving a non-ruling train against it. It is left entirely to the dispatcher as to its being practicable in any case. In fact this is left as a loophole for the company to crawl out of. When anything happens they say it was practicable in this or that case. Now, if practicable at all, why not always? As the officers know that there is a weakness in one rule, with such disastrous results, who else but the company are at fault?

The Delaware & Hudson, the Delaware, Lackawanna & Western and the New York, Susquehanna & Western still stick to the old form and require the ruling train to be held in all cases, and "the right to run is certain, positive and definite, without regard to time."

If this regulation had been in effect on the Pennsylvania are not the chances much greater that the dispatcher would have found his error and have saved 12 human lives? On the R., W. & O., even if the operator failed to hold the train, the inferior train, not having the right to run, would have remained in a safe position. In all these cases it is pertinent to ask if saving 5 or 10 minutes is of more importance than preventing this wholesale slaughter of humanity and reckless destruction of property?

One year ago the management of the New York, Ontario & Western instructed the dispatchers as follows: "Referring to Rule 510, it is considered practicable in all cases to get ruling train's understanding before moving an inferior train against it." That road is a busy single track, ordinarily; yet a heavy World's Fair traffic, together with a large summer passenger business, was handled without any of the embarrassing casualties referred to. Second-class trains frequently are delayed 10 to 15 minutes, but this is preferred to assuming the risks otherwise inevitable.

A. V. AX.

Interior Decoration of Cars Exhibited at the Fair.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In the paper read by Mr. Geo. Gibbs at the October meeting of the Western Railway Club the objection made to the stucco work so lavishly used in the ceilings of the Wagner cars that "It is associated in one's mind with plaster and masonry" does not seem the vital one.

Perhaps in its treatment of the ceiling the Wagner company adopted a pattern too heavily decorated with raised figures; the massiveness of the ceiling would undoubtedly have been less marked had the figures been few and more delicate, and the idea of plaster and masonry would have occurred to no one. The question seems to be whether "compo." is best suited for the purpose.

Its previous use for the same purpose indicates that it is reasonably durable. Its weight, however, is greater than that of the venerated ceiling generally used. In

car construction a certain amount of material must be used, and properly distributed, to give the necessary strength; to this may be added, and of course generally is added in passenger cars, more or less material for pleasing effects and comfort of passengers. The former of these amounts is a positive quantity, or should be; while the latter may vary with the ideas of the decorator. The decoration should be as light as possible, that the total weight of car may be as small as possible; and for this reason the ceiling of lightest weight is to be preferred, and especially so if just as pleasing effects can be produced as with the heavier material. The objections to the composition for ceilings will apply more emphatically to the use of tile wainscoting and floors, and the use of such material in car work is to be discouraged.

An objection to the heavy figures in the "compo." is that so many places are provided for the lodgment of dust and cinders, the removal of which causes much work. This same objection will apply to the immense amount of carving used in the Pullman exhibition cars. Such decorations, if kept clean and free of dust, are very pleasing; it is no small task, however, to keep them clean, and the richest carving and most elaborate stucco work with backgrounds of dirt are exceedingly distasteful. Carving, while it may do for interior finish of exhibition cars, is to be used sparingly in those for every day service, because of the extra work required to keep it clean. Much better is the plain finish of the English cars exhibited, in which the pretty varieties are produced by different colored woods nicely matched.

C. X.

Railroad Matters in Chicago.

Freight Traffic.—The volume of outbound freight over the Western and Northwestern railroads was fairly increased the past week by the cold weather which has augmented the demand for heavy dry goods and other lines of merchandise. As stated in recent letters to the *Railroad Gazette*, jobbers claim that stocks of such goods in the interior are small, therefore continued good shipments are predicted. The most marked increase, however, in the outward shipments was in coal; orders from all points which draw their supplies from here were heavier than at any preceding time since the advent of autumn, and shippers stated that they were unable to load and forward cars as fast as the coal was wanted. The railway officers are looking forward to a heavy outward coal traffic the remainder of the year. Officers of Chicago roads having Milwaukee and other lake port connections in the Northwest also state that their outward bound coal traffic from such points is large, and as the coal sent from there mainly goes in box cars they are returned with wheat. There is considerable disappointment on the part of the Chicago lines at the failure of the lumber shipments from here to increase, but it is claimed that the roads are doing a good business by carrying direct from the mills to consuming sections in the West. Therefore the very moderate business from Chicago.

The inbound grain traffic was larger than generally anticipated. The aggregate deliveries here by 11 Western roads for the week ending Nov. 18 being 4,862,000 bushels, compared with 3,838,000 bushels the corresponding time in 1892, showing an increase of 1,024,000 bushels. There was, however, a loss on flour and miscellaneous produce tonnage. Cattle also decreased 913 carloads. The shrinkage in miscellaneous tonnage was principally due to light arrivals of flour; the roads having lines from Memphis to the Northwest claiming there is no profit in carrying flour from that point to the seaboard at the figures which the "Soo" and Duluth and South Shore lines are taking it. Interviews with the managers of roads traversing the chief agricultural districts fail to discover a very cheerful feeling regarding inward traffic in the near future. General Manager Earling, of the Chicago, Milwaukee & St. Paul system, said: "I have just returned from a trip through the country and found an abundance of property that would readily move to market if prices were satisfactory, but the present low figures for all leading products will prevent a free movement, as farmers think prices will improve later in the season. I therefore look for a very moderate freight traffic the balance of the year." General Manager St. John, of the Rock Island, said: "The prospects for business from now to the close of the year are not very flattering. Our earnings since the opening of November show a small shrinkage as compared with the same time last year. The decrease for the second week was \$17,253, and if we do no worse from this to Jan. 1 we will be fortunate. The loss on freight from the country will mainly be due to the low prices, as there are large stocks back." Officers of the other big roads made similar predictions. General Manager Merrill, of the Burlington system, who has been making personal investigations regarding the corn supply tributary to his lines, thought the crop had been underestimated, but supplies of that grain and all other farm products were likely to be held back for a while because of low prices. Manager McDoel, of the Louisville, New Albany & Chicago, said business was showing a shrinkage, but they were doing very fairly considering the general complaint of dull times, hence he did not look for a very heavy decrease in earnings the balance of the year.

The deliveries of flour and grain at Chicago by each of the 11 Western railways mentioned below, for the

week ending Nov. 18, and the corresponding period in 1892, compare as follows:

	1893.		1892.	
	Flour.	Grain.	Flour.	Grain.
C. & N. W.	14,101	943,000	14,497	618,000
H. Cent.	5,700	808,000	450	473,000
C. R. I. & P.	12,200	381,000	5,700	283,000
C. B. & Q.	14,534	914,000	18,952	1,391,000
C. & Alton	3,550	475,000	1,000	151,000
G. & E. Ill.	450	169,000	100	37,000
C. M. & St. P.	18,900	712,000	18,390	418,000
Wabash	600	210,000	2,100	84,000
C. & G. W.	16,757	180,000	40,865	233,000
A., T. & S. F.	450	286,000	150	39,000
L. N. A. & C.	8,000	1,000
Totals.....	92,272	4,862,000	102,605	3,838,000

Passenger Traffic.—As was expected, the volume of legitimate travel since the close of the World's Fair has been of moderate proportions, particularly so in travel out of Chicago. The shrinkage is due in part to the fact that many who came here during the closing weeks of the fair on tickets purchased in the interior at reduced rates did not wish to return, sold the return coupons to scalpers at the best prices obtainable, and up to Nov. 15, when such tickets expired by limit, the market was flooded with them. Scalpers knowing that they soon would become worthless forced them on the market, and as the period for their expiration approached those who saw an opportunity to use them made their own prices. As a necessary result the railroads found little demand for outbound tickets at the restored rates, and their receipts from passenger business have been light and show a decrease compared with a year ago.

In referring to the winding up of the World's Fair passenger traffic a general manager said: "Despite the apparent increase in traffic that the fair brought I think it is safe to say that every railroad officer in any way connected with the operating department of the roads is heartily glad that the last train carrying passengers from the fair has delivered them at their destination and the business has again assumed its normal condition. Only those directly connected with the service can appreciate the labor, care and anxiety caused by handling the largely increased number of passengers."

There is considerable friction between the leading Western roads having Missouri River connections with the Eastern trunk lines. The latter insist on changing their running time between the Atlantic cities and Chicago, and in order to make close connections the Western roads will be compelled to materially shorten their running time to leading Western points. This is objectionable to the majority of managers, who claim that the increased speed demanded will prove unprofitable. Referring to the matter, General Manager Merrill, of the Burlington system, said: "The new schedule would compel us to make the time between Chicago and Omaha in 14 hours 30 minutes, or a rate of 30 miles per hour. We protest against the change, but as the Northwestern has adopted it the other roads must protect their interests. The managers of other leading Missouri River roads were still more pronounced in their opposition to faster time, which they said would materially increase the cost of handling trains. The justification offered by the Northwestern is that it is under contract with the Union Pacific to make connections with the latter's through trains to San Francisco and Portland."

CHICAGO, Nov. 20.

Hall Automatic Block Signals on the Chicago & Northwestern.

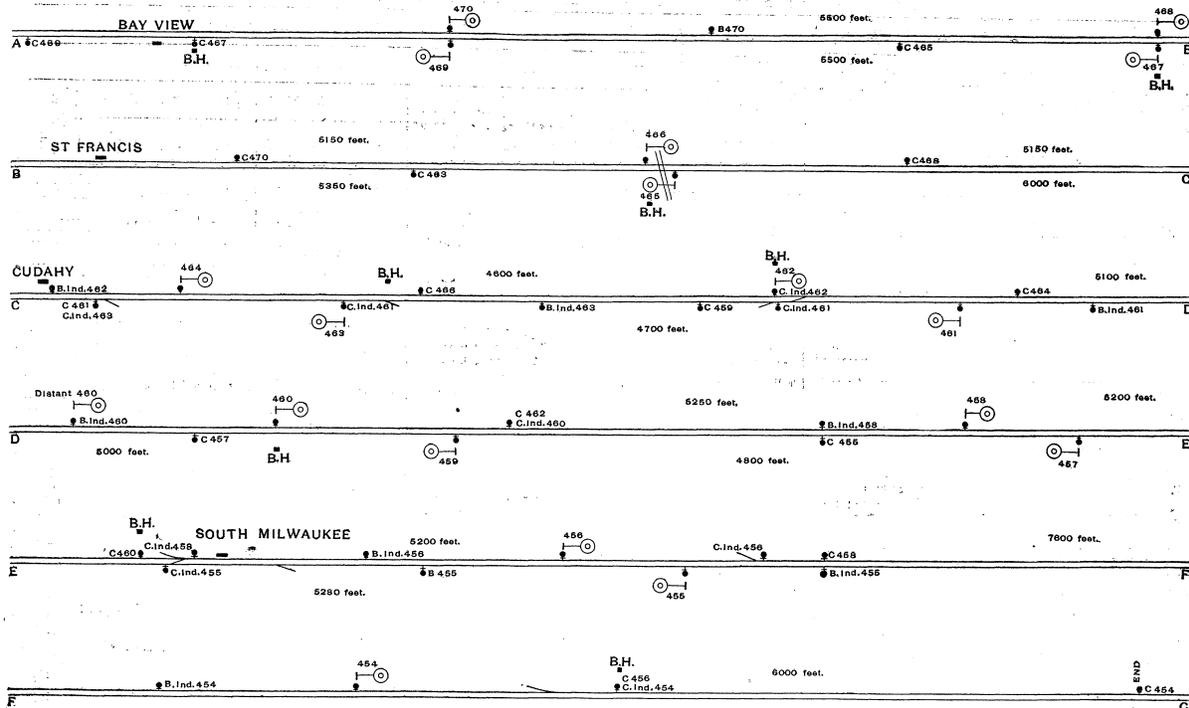
As recently noted in these columns the Chicago & Northwestern has contracted for the erection of Hall automatic block signals, operated by wire circuits, on about 11 miles of its double track line near Milwaukee. This part of the road has few and easy curves, the sharpest being between signals 463 and 464. The distances in feet from one signal to another are indicated by figures on the diagram.

In this installation the signal at outlying switches is a disc instead of a bell, and the signal is operated by a special track instrument. For instance, the disk at the switch marked C Ind. 460 is turned to danger by a train approaching from the north when it passes the track instrument marked B Ind. 460; thus a man at the switch will have ample warning of the approach of the train before it enters the block section, and there is no danger that he will turn signal 460 to danger just at the moment when an engine is passing it. By the use of the disk instead of a bell any failure of battery or wires throws the signal to the danger position and thus gives warning of the failure.

The general arrangement of these signals is the same as that of the Hall automatic block signals heretofore illustrated in the *Railroad Gazette*; for example, a south bound train passing signal 460 sets that signal at danger by the operation of the track instrument fixed opposite to it, and restores the signal to the clear position when it reaches the track instrument at C 460, well beyond the next block signal, 458.

The line wires are insulated and carried in trunking, 5 in. x 5 in., supported on short posts 6 ft. apart. The batteries are to be placed in cylindrical brick battery wells, covered by a frame house, 6 ft. x 7 ft.

The Hall Signal Co. has also contracted to erect sig-



Hall Automatic Block Signals on the Chicago & Northwestern Railway.

A is the north end, G the south end. Each line represents a track. Trains run on the left hand track.

nals for four block sections near Dixon, Ill., where some clock-work automatic signals are to be taken out. The Chicago & Northwestern already has about 200 miles of track equipped with the Hall signals, as described in the *Railroad Gazette* of Jan. 13 last.

The Forging of Eye-Bars and the Flow of Metal in Closed Dies.*

BY H. V. LOSS, M. E., M. AM. SOC. M. E.

The modern requirements of heavy bridge-building have given rise to special manufactures involving peculiar processes for many of the main features embodied in the structures of to-day. Chords, posts, eye-bars, and even the larger nuts, clevises and other less important details, are made to-day at our leading bridge establishments by methods that were never thought of years ago, that is, before the introduction of the present long spanned and heavy structures. The most typical detail of an American bridge is the eye-bar, and it is therefore to be supposed that the manufacture of this article has been the subject of considerable study, thought and experiment. And such is verily the case, which fact can be vouched for by any engineer who will take the trouble to examine the American patent records on this subject. Following the gradual steps of the designs of machinery for this purpose you will find an evolution that represents vast experiments and great outlay of capital, and which also in itself exhibits a true picture of that patient pace which always has to be set if successful results shall ever be obtained.

Eye-bars were originally made exclusively in iron. As steel gradually became introduced on the market, this material found its way, little by little, into bridges and structural work, until now, with the present perfected methods of steel making, it has taken the place of iron to the extent that only one large railroad exists in the United States at the present time which does not permit the use of steel in its bridges. Under these conditions, the vast majority of eye-bars are now made in steel, and this paper will, therefore, unless otherwise noted, refer to bars made from this material. It may be, however to advantage, before proceeding any further, to refer to the methods that have been used, or are at present in vogue, for the manufacture of iron bars, especially since bars of this material were the first ones made, and the processes, as used then, to a certain extent, gave rise to the constructions adopted in later years in the manufacture of steel bars.

IRON EYE-BARS.

Iron bars were originally made by "piling," that is, by placing a piece or a number of pieces of the same material on the end of the bar, inserting this end in a furnace and there heating it to a good welding heat. The bar was then transferred to a die, having the finished contour of the eye, and there subjected to the blows of a hammer, which finished it to the correct shape and thickness. A partial "upsetting" of the solid

bar was, however, tried at a very early date, and the methods in vogue to-day represent both of these two systems with such additions or details as many years experience has proved to be profitable. There are several ways in which "piling" is accomplished.

The necessary pieces may all be added on one side—the top—or they may be subdivided between top and bottom. Again, a third method may be adopted of folding the piece over the end of the bar, with or without additional pieces on top or bottom, as indicated by fig. 1. The bar while under the hammer is subjected to an occasional turn to insure sharper edges and smoother surfaces. At times, with large eyes, it has been found troublesome to fill the extreme corners,

and in such events a bottom die, with a punch attached to it, will force the material, which is displaced from the center, out toward the periphery. The top of the punch must be slightly below the top surface of the finished eye to prevent contact with the top die. See fig. 2. This very same arrangement is also at times used in the manufacture of steel bars, where such are finished under a hammer.

As previously mentioned, a partial upsetting from the solid bar has been used in connection with the final action of the hammer, and such a process is in extensive

use to-day, both for steel and iron. One thing is very certain, however, that with iron bars the hammer must do the main part of the work, as, if otherwise is the case, the bar, when placed in a testing machine, is very sure to break in the eye unless the relation between diameter of head and width of bar is exceedingly large. This re-



Fig. 1.

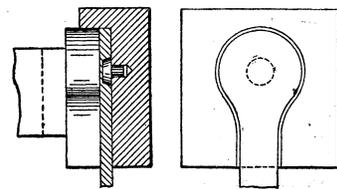


Fig. 2.

lation is, nevertheless, in all instances very much in excess of what it needs to be in steel—the pins being of the same size—regardless of the method by which the iron bar has been made. I have had personal and continued experience in the direction of finishing or almost finishing iron eyes on the upsetting machine. At the Pencoyd Iron Works a number of bars (5) were upset to a finish, except allowing them to thicken about 1/4 in. to 3/8 in. Two of them were subsequently reduced by a hammer.

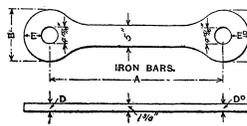


TABLE NO. 1.—FORGED IRON EYE-BARS FOR TESTING THE RELATIVE VALUES OF UPSET AND ROLLED, AND UPSET AND HAMMERED, IRON BARS.

	Marked.	Diameter of head, B-B.	Thickness, C-C, Av. size.	Thickness, D-D, Av. size.	Length, c-c, A.	Diameter of pin, E-E, inches.	Distance, F-F, inches.	No. heats for up-setter.	Method of forging.	Excess in head.	Elastic lim. Lbs.	Ultimate in lbs.	Broke in.
Heads	1	12 1/2"	1 1/2"	1 1/2"	11'-1"	4 1/8"	3 3/8"	4	Upset and rolled Upset and rolled	52%	34,680	47,900	Eye
	2	12 1/2"	1 1/2"	1 1/2"	11'-5 1/2"	4 1/8"	3 1/8"	4					
Heads	3	12 1/2"	1 1/2"	1 1/2"	11'-1 1/2"	4 1/8"	3 1/8"	4	Upset and rolled Upset and rolled	58%	31,720	48,000	Eye
	2	12 1/2"	1 1/2"	1 1/2"	11'-5 1/2"	4 1/8"	3 1/8"	4					
Heads	3	12 1/2"	1 1/2"	1 1/2"	11'-1 1/2"	4 1/8"	3 1/8"	4	Upset and rolled Upset and rolled	61%	32,000	47,140	Eye
	3	12 1/2"	1 1/2"	1 1/2"	11'-5 1/2"	4 1/8"	3 1/8"	3					
Heads	4	12 1/2"	1 1/2"	1 1/2"	10'-10 1/2"	4 1/8"	3 3/8"	2	Upset and hammered Upset and hammered	67%	32,110	52,330	Bar
	4	12 1/2"	1 1/2"	1 1/2"	7'-11 1/2"	4 1/8"	3 1/8"	2					
Heads	5	12 1/2"	1 1/2"	1 1/2"	7'-11 1/2"	4 1/8"	3 3/8"	2	Upset and hammered Upset and hammered	69%	32,600	53,360	Bar
	5	12 1/2"	1 1/2"	1 1/2"	7'-11 1/2"	4 1/8"	4"	2					

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† A very old way of making iron eye-bars was to manufacture the eye separately and afterward weld it to the main body of the bar. The uncertainty as to strength of a bar made by this method is very obvious.