

was referred to a committee with instructions to revise this section and have it conform to the sentiments of the members present, a majority of whom held that a liberal construction should be placed upon this clause.

There was a suggestion that the association select some technical paper as an official organ, but on motion of Mr. Conger it was voted that the proceedings be given out impartially to all mechanical papers asking for them. On motion of Mr. Kidder the engraved membership card was ordered changed so as to read "Air-Brake Men" instead of "Air-Brakemen."

In the discussion on the report on Cleaning and Oiling

three miles, and we have automatic couplers and non-automatic couplers. That is a very difficult train to run; and having a small main reservoir, 26½x33, we found we had to run main reservoir pressure up very high, and the packing had to be of the best kind to stand it. We started in trying bird shot (No. 4, I think), as a packing, and have had most excellent results; we only had to pack the pump once, and it never leaked after it left the shop; but we find that we are obliged to put asbestos in the end close to piston head. It was chain-gauging engines that brought this about.

Mr. Fowler: I have experimented with No. 8 bird shot

The latter difficulty was met by turning the machine around so as to give the operator the front of the tower instead of the back, according to the usual practice. This arrangement has given excellent satisfaction, however, and has been adopted at other points on the Pennsylvania with good results. This disposition of the machine made it possible to have a platform under the side of the tower of sufficient width and head room to serve the purposes of the Express Co. The construction of the tower is shown in plan and sectional elevations in Fig. 3. It will be observed that the bottom line of the stringers of Madison street bridge are 5 ft. 6 in. above the floor line of the

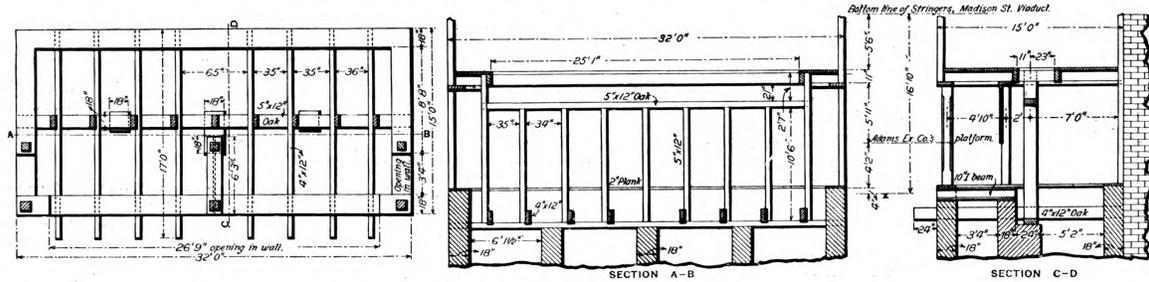


Fig. 3.—Framing of Signal Tower.

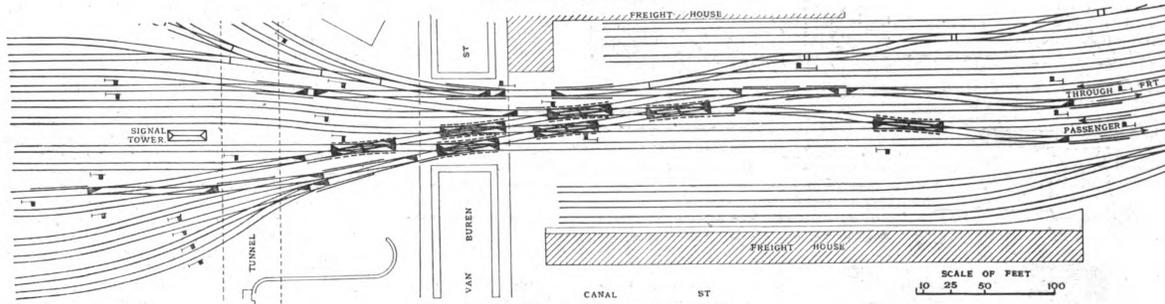


Fig. 2.—Signals at South End of Union Station.

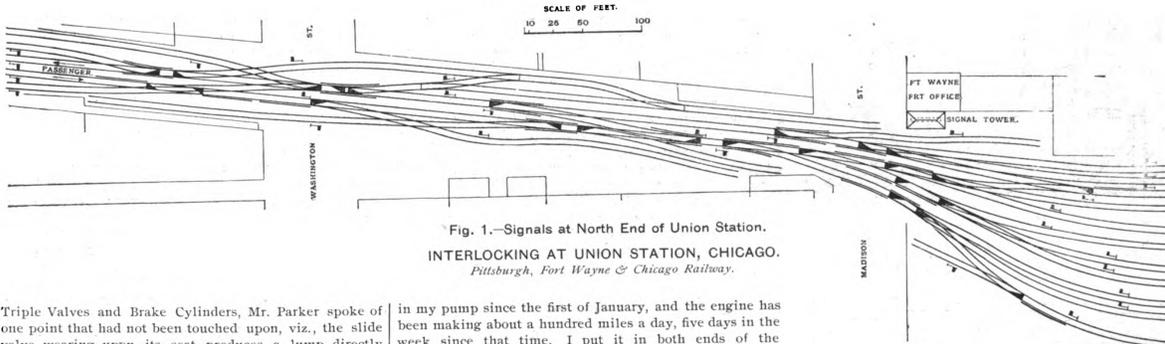


Fig. 1.—Signals at North End of Union Station.  
INTERLOCKING AT UNION STATION, CHICAGO.  
Pittsburgh, Fort Wayne & Chicago Railway.

Triple Valves and Brake Cylinders, Mr. Parker spoke of one point that had not been touched upon, viz., the slide valve wearing upon its seat produces a lump directly under the cavity, in making frequent service applications, and a blow at the exhaust port, when a full or emergency application is made, will result. Remove this lump and the blow will cease. He came to the conclusion that that lump on the slide valve seat scratched the end of the slide valve, when it was drawn down over it when an emergency application was made.

Mr. Nellis spoke of the necessity of oiling the carriers which support the cylinder and Hodge levers on passenger cars, as they cause a very disagreeable noise on passenger trains. Mr. Houchin, speaking of oiling brake cylinders, thought there should be no difference between passenger and freight cars. While the latter do not run as much the leather packing gets hard and stiff while the cars are standing still.

In the discussion on the paper on Air Pump Repairs a number of members gave their experience with metallic packing. Mr. Best said: On some roads where 35 or 40 cars are handled down heavy mountain grades, you won't find a packing every day that will stand such severe work. It burns out. On the Southern Pacific I put up 80 8-in. pumps with metallic packing, and at that time found it was the only thing which would stand. I found, on one occasion, that the packing would run for eight months without being renewed. Metallic packing is about as good a thing in air pumps as I have ever seen, because it will not burn out just the time you want it; but it requires constant and regular oiling.

Mr. Kidder spoke of finding an outside leak in the piston end when the piston moved backward, and that a good deal of air was lost where there was defective packing in the air piston.

Mr. Carney: Upon the Ashland Division of the Chicago & Northwestern we now have twenty-six car trains running down a grade where we don't use steam for forty-

in my pump since the first of January, and the engine has been making about a hundred miles a day, five days in the week, since that time. I put it in both ends of the pump, and put nothing else in the stuffing boxes with it. I found, as far as the steam ends were concerned, it gave good results; but in the high pressure air cylinder, I found I had to use asbestos to help along.

**Interlocking Plants at Union Station, Chicago.**

The Union Switch & Signal Co. completed, about a year ago, the installation of two mechanical interlocking plants at the "Union Depot" in Chicago, which possess a number of interesting features. This station, which is located on the west side of the river and fronting on Canal street, is approached both from the north and the south, the Chicago, Milwaukee & St. Paul, and the Pittsburgh, Cincinnati, Chicago & St. Louis approaching from the north, and the Chicago & Alton, Chicago, Burlington & Quincy, and Pittsburgh, Fort Wayne & Chicago coming in from the south.

The plan of the yard north of the station is shown in Fig. 1, the main inward and outward passenger tracks being indicated by arrows. The location of the signal tower for the operation of this plant was rather a perplexing question, as the tracks are crossed at Madison street by a viaduct, the abutments of which are quite close to the tracks, thus making it necessary that the tower be placed near by in order to give the operator a good view of the yard. The tracks being spaced so closely, the location adopted was obviously the most desirable one. The situation was further complicated, however, by the fact that the Adams Express Co. had a platform at this point about six feet in width, and also by the fact that a man standing in the side of the tower farthest from the tracks would be unable to see a part of the yard on account of the abutments already mentioned, and other obstructions along the tracks north of the viaduct.

tower, thus affording the operators an unobstructed view of the upper part of the yard.

The machine in this tower has a 60 lever frame with 52 working levers distributed as follows: 21 levers for 25 switches, 11 levers for 25 locks and 20 levers for 28 signals.

Fig. 2 shows the plan of the yard south of the station. The tower in this case is located near the north end of the yard and a short distance away from the Van Buren street viaduct. The space between tracks is limited here also, and the tower has a width of but six feet, from the ground up to the floor framing of the room above, which is placed at such a height as to clear the smoke jacks of passing cars. This tower is of sufficient length to accommodate a 72 lever frame. The machine is equipped with 68 levers, 36 of which work 47 switches and 7 movable point frogs, 15 work 61 facing point locks, and 17 work 24 signals. All switches in both yards have independent facing point locks. An unusual feature of these yards is the absence of all high signals. None but dwarf signals are used and each of these is located in its proper place, another unusual thing.

The greater part of the passenger traffic of the Chicago & Alton, Chicago, Burlington & Quincy, and Pittsburgh, Fort Wayne & Chicago, is handled over the two west tracks, though some of it goes over the two tracks adjoining, which are also used for a part of the freight movements through the yard. The remainder are freight and storage tracks.

The designing and arrangement of these plants was done by Mr. W. M. C. Grafton, Engineer of Signals of the Pennsylvania Lines west of Pittsburgh, to whom we are indebted for the drawings and information.