Passenger Stations of the Illinois Central.

In showing the accompanying photographs of 15 stations and station interiors on the lines of the Illinois Central, practically all of the most characteristic types in use on that railroad are included. There is the two-story frame house as commonly seen along the Yazoo & Mississippi Valley, and there is the unique Van Buren street suburban passenger station at Chicago, representing a very high development of the art of making a practical, handsome, and commodious station perfectly adapted to the situation in which it had to be built. It will be noticed that the prevailing type of construction is brick. The usual price of brick per thousand on the Illinois Central for outside work is $4.50, and of pressed brick for inside work $16.50. The usual price in Illinois for different soft wood lumber used in station work is $20 per 1,000 ft., and the cost of brick stations is estimated at one-third more than that of a frame station of the same general character; but, on the other hand, the cost of maintaining frame stations comes to about one-half more than the cost of maintaining brick stations. Station plans are made by the company's own architect, and the smaller stations on the line are built by the company's forces.

The two-story southern house (Fig. 1) representing the type of station situated at isolated points in farming districts, contains separate waiting rooms for white and colored passengers, a ticket office and a freight room, on the ground floor. The upper part of the house is occupied by the agent's family, and contains from three to five rooms. Fig. 2 is also a frame station, of a considerably more pretentious type. The one shown is located at Fulton, Ky., which is the half way point between Chicago and New Orleans, and is also the junction of the main line, the Yazoo & Mississippi Valley, and the line to Princeton and Louisville. The ground floor of the Fulton station has waiting rooms for white and colored passengers, a ticket office, smoking room, and United States mail and baggage rooms. The second story portion over the ticket office, resembling somewhat an operator's tower, contains despatchers' and road supervisors' offices.

Fig. 3 shows a neat and trim style of station considerably used on the western lines. It is located at Waterloo, Iowa, which is a junction point for the branch to Albert Lea, Minn. This station contains men's and women's waiting rooms, ticket office, toilet arrangements, and facilities for the American Express Company. As shown in the illustration, there is a separate baggage and lunch room building in connection with the station. The station at Champaign, Ill. (Fig. 4), is of this same general type, but has the baggage and lunch room under the same roof with the main station. It furnishes a good example of the type of brick station, used at towns of moderate size on the northern lines of the Illinois Central.

The Kankakee station (Fig. 5) is a somewhat more pretentious structure with a separate protection for the platforms, instead of provision for this being made by extension of the roof, as with the former stations. The station at Kankakee has the men's and women's waiting rooms, ticket office, baggage and express rooms on the first floor, and the second floor contains offices for the division headquarters. Clinton, Ill. (Fig. 6), is a thoroughly practical solution of a combination passenger station and office building. It is a brick structure three stories high, and in addition to the usual station arrangements, including a lunch room on the ground floor, the upper portion of the building provides ample accommodations for the superintendent, roadmaster, chief despatcher, trainmasters, and supervisors. It also has large telegraph offices and complete toilet arrangements. Clinton is the junction point of the old line from Freeport to Centralia with the main line to St. Louis, and the branch across from Champaign to Havana, Ill.

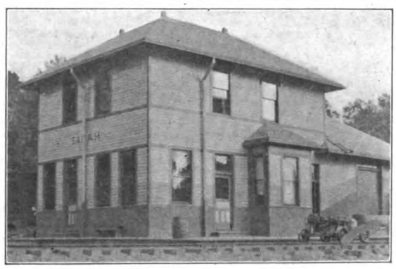


Fig. 1.—Small Towns in the South.

Fig. 2.—Station at Fulton, Ky.

Fig. 4.—Champaign, Ill.

Fig. 6.—Clinton, Ill.

At Carbondale, Ill., on the cut-off from the main line to Paducah, Ky., there is a good example of a type of station (shown in Fig. 7) which provides quarters for the United States mail service. Here there are two offices for mail clerks and a mail room, in addition to the usual station arrangements. As at Waterloo, a separate lunch room is maintained. The station at Denison, Iowa, (Fig. 8) is a typical one-story brick station, well balanced, with the men's waiting room on one end and the women's on the other, connected by a passage between the ticket office and toilet room. The baggage room is at one end of the structure and the express office is at the other end. On the outside of stations of this general kind, a device has sometimes been adopted, as at Rockford, Ill., of using for a height of four or five feet from the ground, a type of fancy brick so rough that it is impossible to write on it, so that it restrains the literary and artistic inspirations of passengers and other frequenters of the station.

The station at Springfield, Ill., (Fig. 9) is a notable instance of careful detail and finished work in a large and pretentious station. There are two ticket offices placed on opposite sides of a passage between the men's and women's waiting rooms. One of these waiting rooms is shown separately in the accompanying illustration (Fig. 10), and is seen to be prettily decorated with an overhanging balcony. A driveway extends around the rear of the building, the entrances on this side being in conjunction with porte cocheres. The upper part of the building is divided up into quarters for the use of division officers.

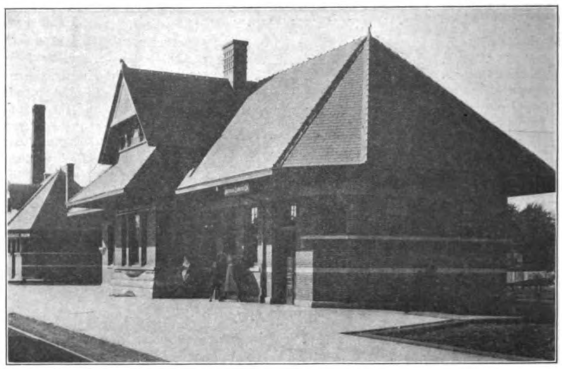


Fig. 3.—Waterloo, Iowa.

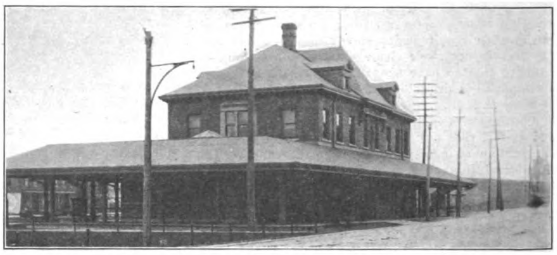


Fig. 5.—Kankakee, Ill.

Fig. 7.—Carbondale, Ill.

At Decatur, Ill., (Fig. 11) the architect has departed quite radically from any standard or set style, but has developed an extremely pleasing structure worked out on Gothic lines. The station is built of pressed brick, stone trimmed, and has a red tile roof. The Decatur station contains a lunch room and kitchen, while the express and mail buildings are separated from the main structure, but connected by a covered platform. It will be noticed, however, that no effort has been made to protect from rain passengers standing on the main platform. The station at Council Bluffs, Iowa, (Fig. 12) is the first one shown where use is made of an umbrella shed. The station is a very pleasing and modern structure, differing somewhat architecturally from those hitherto shown. It is built of buff pressed brick, trimmed with stone, and the main waiting room has large brick fireplaces. This

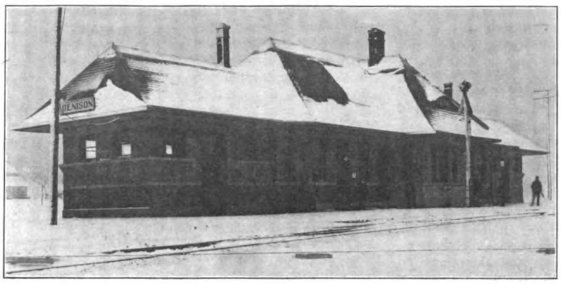


Fig. 8.—Denison, Iowa.

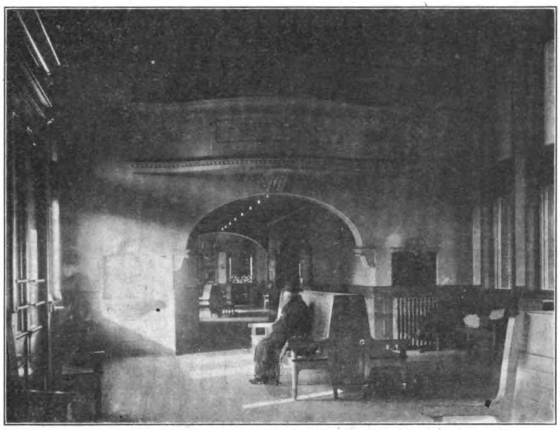


Fig. 10.—Men's Waiting Room, Springfield, Ill.

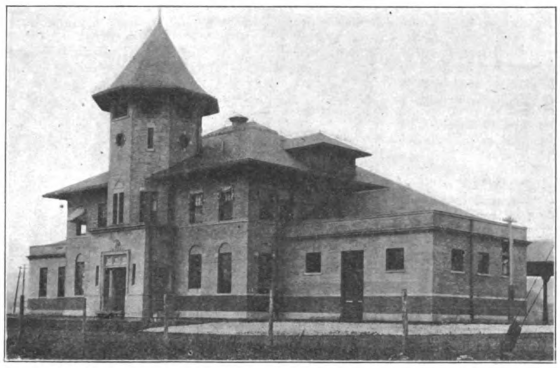


Fig. 12.—Council Bluffs, Iowa.

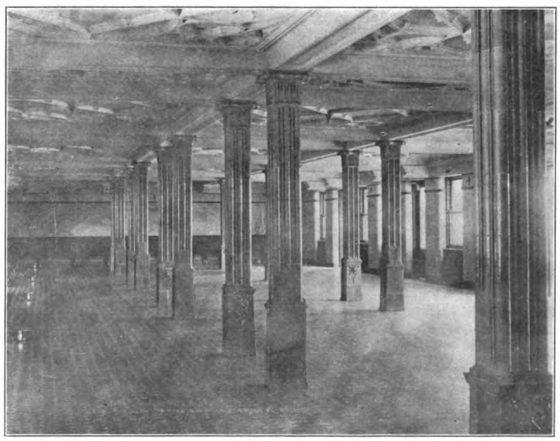


Fig. 14.—Local Suburban Waiting Room, Van Buren St. Station.

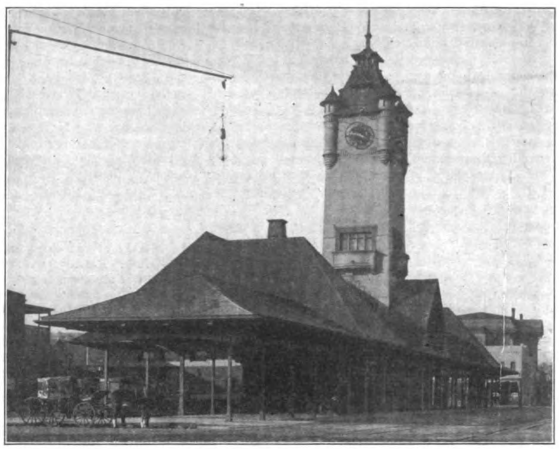


Fig. 9.—Springfield, Ill.

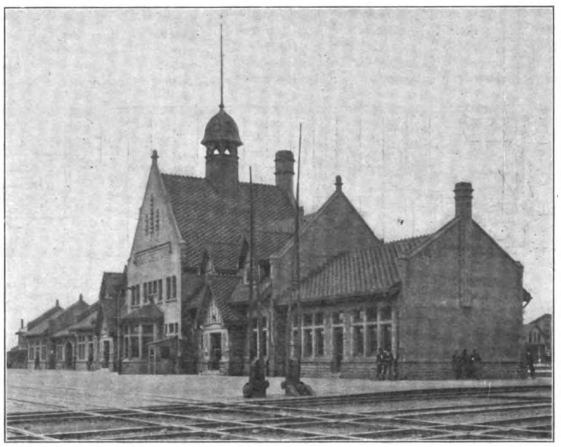


Fig. 11.—Decatur, Ill.

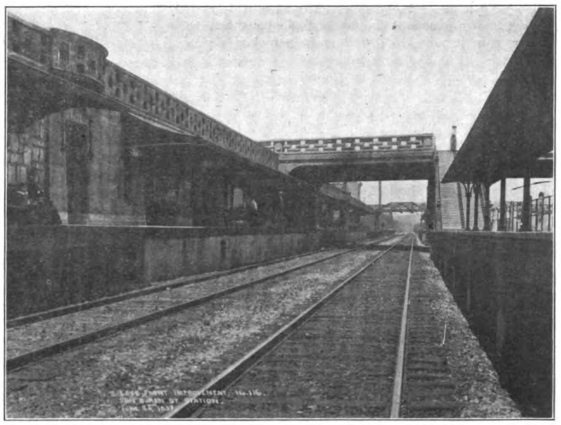


Fig. 13.—Van Buren St. Suburban Station, Chicago.

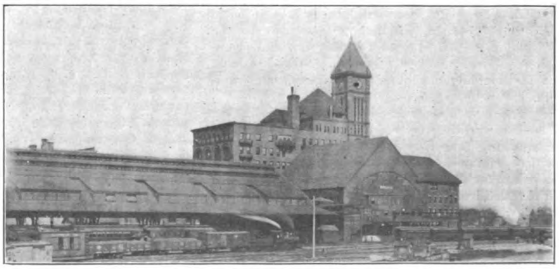


Fig. 15.—Central Station at Chicago.

waiting room is two stories high, broken at the second floor by a balcony. The one-story wings on either end are well placed, the grouping is good, and the station is at once complete and trim looking.

The Van Buren street suburban station, at Chicago, the exterior and an interior view of which are shown in Figs. 13 and 14, is a unique structure, entirely concealed under the Lake Front Park, at Chicago; but the ventilation and light is perfect, and the station is cool in summer and warm in the winter. A series of matron, toilet, smoking and women's reception rooms, janitor's closet, and ticket offices open upon two waiting rooms, each 34 ft. x 106 ft. The interior is finished in mahogany, with tile floors and walls, while the outside presents a stone front of modern Gothic, with an artistic bridge over the tracks. The basement contains gas fuel heating boilers and electric lighting apparatus. The last illustration (Fig. 15) shows, from the lake side, the Central station at Chicago, which has recently been enlarged by the erection of an annex office building, facing Twelfth street. This office building is of fireproof steel construction, employing the Roebling system of concrete floors on expanded metal. The exterior is built of pressed brick and terra cotta, and in design conforms to the character and details of the architecture and general plan of the old structure, which has been fully described in previous issues of the *Railroad Gazette*.

Compressed Air and Pneumatic Tools in Railroad Service.*

To the railroads must be given the credit for the development of air tools in the metal trades, as it was the air-brake pump, always available as a source of power supply, that gave the initiative for this development of pneumatic tools in the railroad shops; but the air-brake pump as a stationary source of compressed air supply has long since outlived its usefulness, and it is a humble shop indeed which does not now possess a modern compressor. It is gratifying to note the improvements effected in the design and construction of air-compressing machinery within the past five years, directly affecting, as it does, the cost of performing the operations for which air tools are employed; and to a certain extent the rapid increase in the use of air tools may be traced to the economies effected in transforming steam or electric power into compressed air.

The pneumatic hammer is, of course, the most widely used and best known pneumatic appliance in shop service, employed for chipping, calking, beading flues and riveting. It averages 10 to 13 lbs. in weight and operates at a speed of 1,100 to 2,000 blows per minute. One man with a pneumatic hammer, in chipping, etc., will do as much as three to four men working by hand. A ⅜ in. chip has been removed by one of these hammers from a boiler plate ½ in. thick at the rate of 7 in. in 48 seconds. Among special uses for the hammer of particular interest to railroads are driving spikes, and removing scale from locomotive crown sheets. For spike-driving the ordinary long stroke riveting hammer held by the hand is provided, with a set suited to the spike head; but for the removal of scale from crown sheets the hammer is adjusted between grate and crown sheet by means of a pipe extension.

The riveting hammer has been the outcome of the chipping hammer, made with a larger diameter cylinder and a larger stroke. Riveting hammers are now used on all boiler work, tank work, metal cars, bridges, etc. The air drill, or reamer, next to the hammer, is the most widely known pneumatic appliance, and has an extensive range of utility. Among special uses for the drill motor is its adaptation as a casting cleaner, portable emery wheel, polisher, driving cylinder boring-bars, valve facing machines, motor hoists, operating turntables, jib cranes and elevators. In the car shops the pneumatic drill, running at a higher speed than the one used on metal, and weighing from 10 to 25 lbs., will bore a 2½ in. hole through 5 in. of oak in less than 20 seconds. In the foundry compressed air is used for chipping and cleaning castings, operating hoists, elevators, casting breakers, sand blasts, moulding machines, sand sifters, sand rammers, etc.

In the railroad yard compressed air is used for cleaning seats, cushions, curtains and bedding and for testing air-brake equipment. The time is not far distant when all roads will be equipped with a small compressor plant at junction points for the purpose of testing air-brake equipment on cars received from foreign roads before resuming their journey.

Pneumatic tools must receive proper care and lubrication in order to give proper results, therefore one of the most important factors connected with their care is to keep them clean and well lubricated. A good plan is to clean by using benzine freely through the throttle handle. This dislodges all foreign matter and cuts the thick oil which can then be removed by blowing the air through the throttle. It is an excellent plan to submerge the tools occasionally over night in a bath of kerosene and then blow out under pressure the following morning, and lubricating with a good quality of light machine oil. Proper efficiency can only be obtained by selecting tools of suitable weight and capacity for each class of work.

The following uses and savings are given by a superintendent of motive power of one of the large western railroads:

Putting wheels in wheel lathe, three lathes in the shop, an average of one change a day, save one man in handling this work. Hoisting steel-tired wheels and axles in lathe, average of six changes a day, save one hour in time and one man less to handle the work. Hoisting axles into cut-off lathe, an average of ten changes a day, save one hour per day in time. One large boring mill averages two changes a day, saving of time of 30 minutes and the use of one helper. Handling cyinders in large boring mill and planer, save the labor of one man and one-half hour each change. Three men working on pistons, etc., in raising them from the floor to the bench, serving three machinists, save one helper five hours per day. Raising chucks, face plates and other heavy work, air hoists in the machine shop save one helper one day. Lifting driving wheels and other heavy work on the large slotting machine, saves the time of one man and 20 minutes. In applying cylinders on boilers saves one machinist and helper's time of 10 hours. Facing valves, saves helper's time of four hours. Pressing on driving wheels and axles, etc., three less helpers one hour each. Boring cylinders, three helpers' time four hours. Applying driving brakes to old engines, drilling holes, reaming, etc., saving 15 hours of time of machinist and helper. Pneumatic tin and galvanized iron press, in getting out stock for 20 dozen water buckets, get it out in eight hours where it previously took 40 hours. In making brake shoes, stamping a loup to have a casting run on, previously one man would do 200 in a day where he now does 600. All work on this machine saves in the neighborhood of from 50 to 60 per cent. Running foundry elevator with the air hoist saves 25 per cent. of one man's time. Save 75 per cent. time putting in stay-bolts in a fire-box by using air motor for tapping out holes and screwing in bolts. Save about 50 per cent. in using pneumatic hammer for calking both flues and boilers. Blowing out engines with air, saves a cord of wood, besides the inconvenience and delay, as the men cannot work around a hot engine to advantage. Handle all engines on the transfer table now run by air, previously run by crank. One man does now what six did before. Pneumatic hoist for unloading scrap at the foundry—the old method took six men 10 hours; under the same conditions, with the hoist, two men will do it in four hours. Unloading a car of wheels took six men half an hour; now three men will do it in 15 minutes. Sandpapering a 50-foot baggage car by hand took about 60 hours; now it takes 14 hours with the sandpapering machine. Air jacks for raising and lowering freight cars now take one man three minutes, where previously it took two men ten minutes. Truck jacks, to remove three pairs of wheels, takes 1½ hours; the old method took six hours. Air whitewashing machine—it formerly took ten men five days; now it takes four men one day.

The question of primary importance in the installation of pneumatic tools is to determine the type of compressor, whether to drive it by direct steam or by belt power, electricity, or water power. Of course water power presents the ideal condition, but for this we must depend upon nature. In many places electricity is preferable where a large power plant generates electricity at a very low cost, but in most cases it is more desirable to have a direct steam-driven compressor that may be operated overtime, without running the rest of the power plant. If electricity is the motive power the question would arise whether it would be most desirable to gear the compressor, or have it direct connected or drive it by belt power. There are arguments in favor of all these different forms of installation, dependent naturally upon the individual conditions presented. Belt power is not always desirable because of the unusual strains that will come upon the air compressor shafting and belts, because an air compressor is not an even running machine. This unevenness of operation is obviated in a duplex compressor, with cranks at right angles, one side helping the other. Furthermore, the duplex type of construction presents the advantage of an auxiliary machine, as one side of the compressor may be cut out and operated independently of the other. There is a strong advantage in compound compression in the larger sizes, providing sufficient attention is paid to adequate inter-cooling.

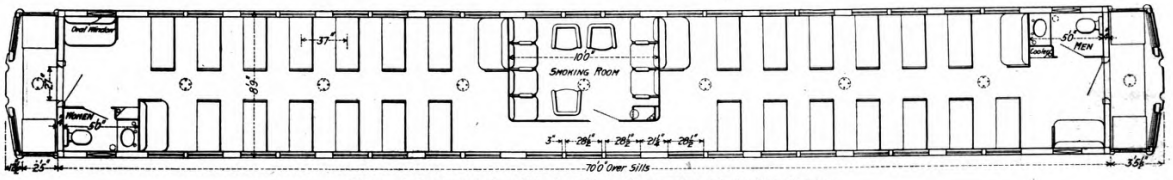
The greatest trouble that has been experienced heretofore in compressor installations is the tendency to install compressors of too limited capacity. The best plan is to estimate the full use for air and then double it. Another point that must not be overlooked in the selection of air equipment is not to be guided too strongly by first cost. Consider all these features and estimate the power cost per cubic foot of free air per minute delivered under your required pressure; make a thorough calculation as compared to first cost, and eventually you will find that the difference between the cheap compressor and the good one will earn a handsome interest on an investment basis.

It is essential that the receiver capacity shall be liberal. Receivers are not expensive, and the greater receiver capacity provided the greater percentage of moisture is eliminated from the compressed air. Receivers are not valuable primarily for storage service, the main purpose being to eliminate pulsations from the air and collect moisture. Separate receivers are recommended in large plants at the chief points of consumption. Frequent tests should be made to determine tightness and locate leaks in air lines. Air pipe lines should be adequate in size to permit discharge of compressed air without appreciable loss of pressure through friction. Cooling of the compressed air after compression, or after cooling, as it is termed, is desirable and reheating the air also increases efficiency.

*Abstract of a paper by Mr. Thos. Aldcorn presented to the Central Railway Club, May 13, 1904.

New Day Coaches for the Erie.

The Erie has lately put in service some new day coaches which contain an innovation in interior arrangement. A floor plan is shown herewith, from which it is seen that the smoking room is placed in the center of the car, dividing it into two compartments. This room is 10 ft. long and contains seven stationary and three movable seats. An interior view of the car, looking toward the smoking room, which is shown, gives a good idea of the interior finish of the car. Each of the three partition walls of the smoking room contains an ornamental window, 30 in. x 40 in., composed of plate glass set in a hard metal framework. In addition to aiding in making lighter the interior of the smoking room, these ornamental windows relieve the blank effect the exterior of these walls would present without them.



Plan of Erie Coach with Smoking Compartment in the Center.

The cars are 70 ft. over end sills, are mounted on six-wheel trucks and have seats for 64 persons outside of the smoking room. Ten were bought, some being used in the World's Fair service and others between Chicago and New York. The Barney & Smith Company was the builder.

Erie Coach with Smoking Compartment.

The Michigan Central Fast Run of April 27.

A very fast run of a special train over the Michigan Central from Niagara Falls, Ont., to Chicago, Ill., was reported in the *Railroad Gazette* of May 6, page 351. An officer of the road gives additional particulars, by the aid of which we are able to make up the following memoranda of distances and speeds.

Niagara Falls to Windsor, 225.66 miles at 68.38 m.p.h., including one stop of 6 min. 30 sec. (at St. Thomas); Niagara Falls to St. Thomas, 115 miles at 71.1 m.p.h.; St. Thomas to Windsor, 111 miles at 70.5 m.p.h.; Shedden to Essex, 86.28 miles at 78.53 m.p.h. The train with which this run was made consisted of an engine, tender, baggage car and three passenger cars. East of Detroit