

Toledo, the eastern terminus, had been found to be in Ohio instead of Michigan, such fact causing a degree of jealousy of the Michigan authorities as against Toledo. Like feeling of jealousy toward the road unexpectedly terminating in Ohio was shown in the prompt measures taken by Michigan for the construction of a rival line, known as the Michigan Southern Railroad, starting at Monroe and located through Adrian westward, and finally extended to Chicago.

The first annual report of the Erie and Kalamazoo road (December, 1887) showed the aggregate cost of line building, etc., to have been \$257,659.73. The year's earnings from opening (September, 1886) were \$55,821.52; from which deducting \$14,181.52 for running expenses and repairs, a profit balance of \$41,610 was left for dividends.

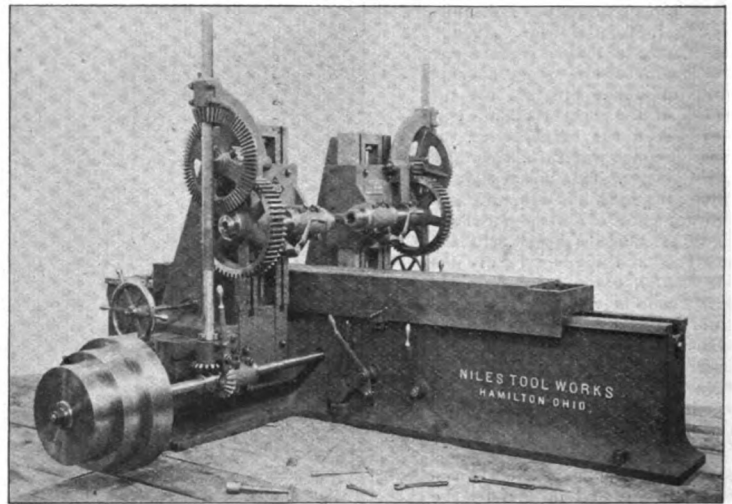
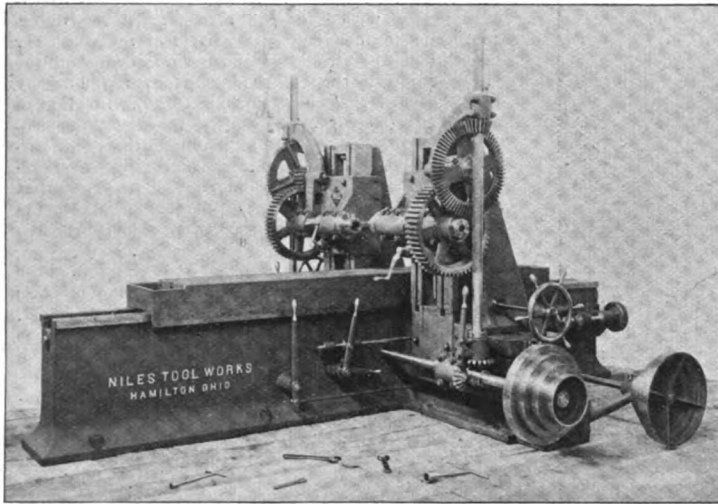
#### Seven Years an Assistant Brakeman.

Among the stories current in German newspapers, especially socialist journals, in these days of railroad accidents and criticism of railroad managers, is this:

It is well once in a while to consider the state as an employer and to remind it of its duties to society. Monday we addressed the conductor of our train as "Mr. Conductor." He answered that he was not a conductor yet. "Well then, Mr. Brakeman," we said. "Not even that," he answered. "I have been assistant brakeman for seven years, but have to do a conductor's work." "What do you get a month?" "Sixty marks [\$14.40]." "Rather small wages for a married man who has already served the State three years as a soldier." "Yes, indeed, the danger in which we live constantly is not properly paid for." "Why have you been assistant brakeman so long; why don't they promote you to con-

#### The Siberian Railroad.

A traveler who has recently passed over the completed portion of the Siberian Railroad writes to a Cologne newspaper that with the help of this railroad an ordinary passenger can go from St. Petersburg to Lake Baikal in 18 to 20 days while, in the good old times, when there was no railroad further east than Moscow, a governor-general once made the journey in 15 days; and experienced traveling merchants made it in 28 to 30 days. It is true that a considerable part of the Siberian Railroad was not formally open for traffic when this writer passed over it, but on that part of it east of the Obi, which is so open, the trains take 72 hours for the run, 20 hours of which are absorbed by the stops at stations.



A Horizontal, Duplex Milling Machine Built by the Niles Tool Works.

the same being 16 per cent. of investment. The directors expected that the road for the following year "would pay expenses and earn 50 per cent., or nearly so, of cost." How far such expectation of profits was justified, is best shown by results, and especially by the fact that in January, 1848, the property, capital stock included, was sold at public sale, under decree of court, to satisfy judgment \$108,599. In this connection it is necessary only to say, that this road ere long became part of the Southern Michigan Railroad, extending west to Chicago, which now constitutes part of the Lake Shore & Michigan Southern.

As indicating something of the experience and liabilities of pioneer railway travel, may here be given the case of a track repairer of the Erie and Kalamazoo road, in December, 1841. After riding a short distance, he changed his seat, and very soon thereafter was startled by the sudden appearance of the end of a loose rail (known as "snake-head") thrust up from the track through the very seat which he had just vacated, the bar striking him under the chin and pushing him backward with much force, though without serious injury. This train left Adrian at 7:30 p. m., and ere long finding itself without fuel or water, it became necessary to supply the one by gathering sticks in the forest, and the other by dipping water by pails from ditches beside the track. The same process again becoming necessary, the passengers concluded it would be easier to complete the trip on foot, than to "work their passage" in that way; and they reached Toledo at 2:30 a. m., in advance of the train, averaging about five miles an hour from Adrian.

It may here be stated that at the time of the opening of the Cleveland and Toledo (1853) several other roads were in operation in Ohio, whose aggregate length was 1,272 miles. The amounts at preceding dates were as follows: 1836, 11 miles; 1841, 36 miles; 1846, 84 miles; 1851, 572 miles.

#### Horizontal Duplex Milling Machine.

The engravings represent a new horizontal duplex milling machine, built for extra heavy work. The bed of this machine has two wings upon which the uprights are seated. The uprights may be adjusted laterally without disturbing their alignment. As the wings are cast solid with the bed, the adjustment of the uprights does not affect their rigidity, while still providing for a wide range of work. The spindles are large and hollow, and run in bronze bushings. Provision is made for taking up end thrust and wear. The spindle heads present large square surfaces to the uprights and are, as is also the table, square gibbed. The uprights and bed are heavy, well proportioned and heavily ribbed. The shafts and gears are of good size, the gears being cut out of the solid. The table has power feed and power quick return. All handles for controlling the machine are placed within reach of the operator, thus enabling him to watch his work while using the handles to throw in or reverse the feeds or to stop or start the spindles. The lubricant used for cutting is collected in troughs and lead to a reservoir in the bed.

The machine is built by the Niles Tool Works Co., Hamilton, O.

ductor when you have been doing conductor's work so long? Have you given reason for finding fault with you?" "Oh, no," he replied, "there are assistant brakemen who have served longer than I have. But, you know, when we become conductors they have to pay us 85 marks [\$20.40] a month, and the longer they can keep a man at 60 marks the better they like it." As he noticed our searching glance at his extremely threadbare uniform he said: "On 60 marks a month we have to furnish our own uniforms: the post-office employees don't have to do that." Why do we write this? On the one hand, to show that the little fee which the traveling public only too seldom gives the conductor is no superfluity; on the other, because it seems very strange to us that the state, which is constantly making laws to compel other employers to treat their men humanely pays so poorly its own employees of the lower grades.

The railroad journal in which we find this quoted shows that either the brakeman or the reporter lied in certain of the above statements. An assistant brakeman gets 80 to 90 marks (\$19.20 to \$21.60) a month, and not 60

On the part of the road east of the Obi, which is officially called the "Central Siberian Railroad," this traveler reports a sad condition of things. The cars, which are excellent, are occupied chiefly by men traveling on passes, who belong to a low class. The walls are filthy, the mirrors and window panes scratched, and even the outer side of the cars scribbled over. On arriving at a certain station the conductor, after calling out its name, adds in a loud voice: "Look out! This is a terrible place for stealing." At this place, and for 50 miles further, there is no water. Here there was a wait of 17 hours before the train started for Tomsk. Where the bridge over the Yenisei stands the ice piles up in floods 20 ft. high, and the bridge is made to resist it. Thence east there is a train only three times a week. To Karsk, before the railroad, the journey was made by post in 24 hours, and in winter in 22. The train takes 18 hours.

This part of the road, it must be remembered, is in



Fig. 2.—Carriage-ways and Foot-walk Leading from High Street to the Union Passenger Station, Columbus, Ohio.

marks; he is never employed continuously as conductor, and he is not required to wear a uniform. Promotion may be very slow from the ranks of assistant brakemen, but this is because the law requires that preference shall be given for the places of full brakeman and conductor to non-commissioned officers of the army discharged after several years' service in addition to the three years required of everybody. It has been found very difficult to retain these non-commissioned officers, and their retention is considered of vital importance to the efficiency of the army. But stripped of all its exaggerations, this picture of a German sub-brakeman will hardly seem tempting to an American railroad man.

the condition in which many of our long lines have been while still "in contractors' hands," trains being run primarily for the purpose of extending the road, and passengers admitted only on sufferance, as it were.

#### Columbus Union Passenger Station.

The new Union passenger station at Columbus, O., was described in the *Railroad Gazette* of April 30 last, drawings being given of the first and second floor plans of the building, of the plan of the tracks in the trainshed, end elevations of the roof truss, of the trainshed and of some details of the trusses and bracing. We now

give some outside and inside views made from photographs recently taken.

This station was designed by D. H. Burnham & Co., of Chicago. The trainshed is the old one, which has been extended 75 ft. westward and has been improved by the addition of ornamental screens of copper and

those who have passed examinations with credit at the training school, and others announce that they will do so hereafter.

For 10 years past Hungary has had a special school for the instruction of railroad employees, which is managed

India, through the Suez Canal and the Hellespont to Odessa. That this traffic will be diverted by the Siberian Railroad is a common supposition; but the Austrian Consul at Odessa says no, because the freight rate by rail on manufactured goods from Odessa to the western terminus of the Siberian Railroad is 87 cents per peck (36 lbs.), while by sea it is only 18 to 20 cents for the whole distance to Vladivostock, the Pacific terminus of the Siberian Railroad. Those who count on a revolution in traffic by this road should reflect a moment on the cost at the very lowest rates of carrying freight 6,000 miles by rail.

The Hungarian State Railroad stations have in the past been provided with large bells, 676 in all, with which the starting of trains, etc., was notified. Last June this use of these bells was abolished, and the Minister of Trade, who is in charge of these railroads, directs that the bells which are no longer needed may be sold at moderate prices, in the first place to churches or schools, secondly to volunteer fire companies and similar societies, and finally to industrial or other establishments. Under certain circumstances, or when poverty is shown, the price of the bell may be reduced to what it would sell for as old metal.

By a new parcels tariff in France, packages whose greatest dimension does not exceed 5 ft., and weighing from 11 to 22 lbs., will be carried from any station of the State Railroad to any other station in France for 1.25 francs (24 cents) when delivered at the consignee's station, and for 29 cents when delivered at his domicile. No more than 40 francs will be paid for the loss or damage of such a parcel unless the shipper insures it, which he may do up to 500 francs for a charge of 12 or 17 cents, according as the delivery is at the station or the domicile.

Twenty years ago and more we heard much of the "Fairlie locomotive," which the late Mr. Robert Fairlie urged as indispensable to economy, on narrow-gauge railroads especially, and some of which were used on the steep grades of the Mexican Railway and elsewhere. In Russia, where they were introduced with the first narrow-gauge railroads, they seem to have maintained themselves. Late government reports show that while there were 46 Fairlie locomotives in use in Russia in 1865, in 1893 there were 51, and in 1894, 74.

American travelers who go to Europe by the Mediterranean, as many do in winter since the German steamers have been running to Gibraltar, Algiers, Naples and Genoa, will be interested in learning that the express train which heretofore has had a sleeping car from Paris to Madrid and Seville, this fall has one once a week to and from Gibraltar. It will leave Gibraltar (or rather the Spanish town Algeciras, across the bay from Gibraltar) Wednesdays at 6:35 p. m., and arrive in Paris at 8:15 p. m. Friday.

The Austrian "rail pool," which was about to expire, is said to have been renewed for a term of five years, till the end of 1902. There are six mills in the pool, one of them belonging to the Southern Railroad. Their aggregate production last year was 67,000 tons, besides what the Southern road rolled for its own use.

About Oct. 1 another considerable section of the Sibe-



Fig. 1.—High-Street Entrance to Union Passenger Station, Columbus, Ohio.

iron in the gables at both ends. The station proper, at the south side of the trainshed, has a basement at the level of the tracks; a main floor above this, with a bridge 50 ft. wide extending out across all the tracks in the trainshed, with stairways leading down, both right and left, to platforms between each pair of tracks; and a third story containing offices. The peculiarity of the station, as shown in the plan drawing, is the arcade entrance, built on the viaduct which carries High street across the tracks west of the station. This viaduct is 800 ft. long and is lined on the side toward the station with a long row of small two-story buildings designed to be used for stores. These buildings hide from the street the view of trains standing in the station. The row is broken in the center by an ornamental structure of arches and columns, faced with terra-cotta, called the arcade, which forms the main entrance from the street to the station. One end of the arcade is shown in Fig. 1. Passing through this entrance carriages may proceed along a level way to the carriage stand, on a level with the main floor of the station, or down an incline to the basement, which is on a level with the tracks. The roadways to the two levels are shown in Fig. 2, which is a view looking eastward from the viaduct. From the arcade to the station is a distance of about 300 ft.

Fig. 3 shows an interior view of the station, taken in the main waiting-room looking east.

Foreign Railroad Notes.

The Vienna "Training School for Railroad Employees" has just begun its sixtieth year. Unlike the Budapest school this does not prepare men for appointments, but is open only to men already in railroad service who wish to increase their special knowledge and qualify themselves for promotion. The Vienna school has two annual courses, the lower including railroad technology, traffic geography, description of goods transported, and book-keeping; the higher railroad law, political economy, traffic statistics, custom-house regulations, rates, and electro-technology. The expenses of the school, which are small, are borne by the several railroad managements interested in proportion to the length of their lines. The management and supervision and the appointment of teachers are exercised by a committee of five, three appointed by the conference of Austrian railroad directors and two by the Austrian Railroad Club. There are two classes of students, regular and extraordinary. The latter are limited only by the seating capacity of the rooms where instruction is given. They choose their branches of instruction at will and are not bound to submit to any examination at the close of the course. The number of students has increased from year to year and last year there were 141. One of the leading Austrian roads has, in promoting men, preferred

by the government in association with the railroad administrations. The school is intended primarily to fit men for station, telegraph and commercial service. In these 10 years it has turned out about 1,800 men. The students have first 10 months instruction in the school at Budapest and then three months service on a railroad, the latter being an indispensable part of the course. The subjects taught are railroad construction and equipment, geography, history of the development of railroads, railroad law, railroad arithmetic and book-keeping, an account of materials and goods, and railroad sanitation. Only practical railroad men are permitted

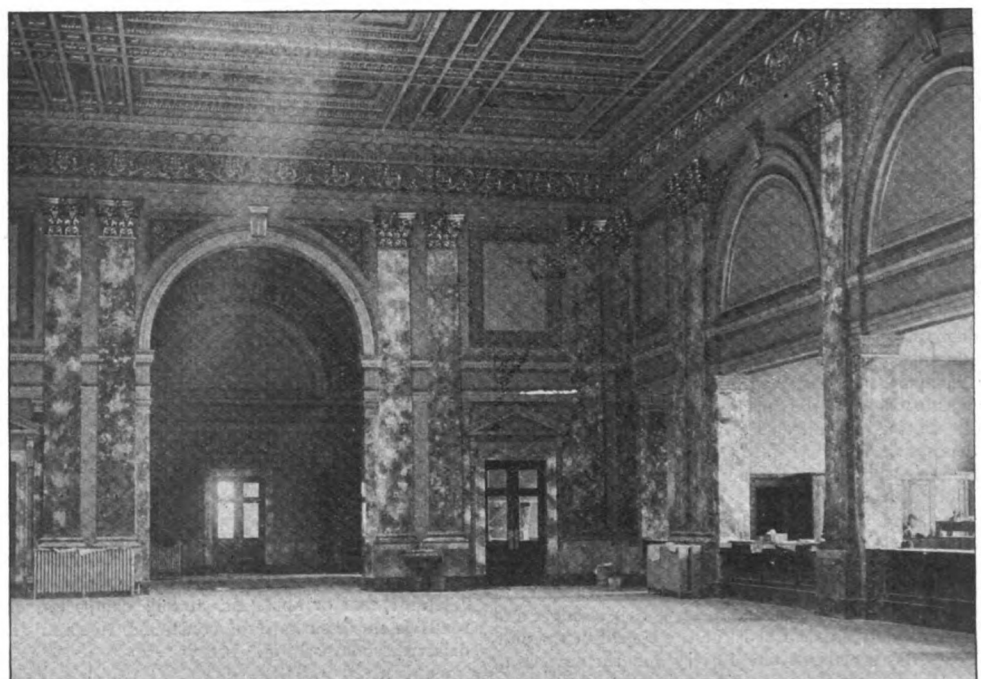


Fig. 3.—View in Main Hall, Columbus Union Passenger Station.

to serve as teachers. Substantially all of the graduates enter railroad service immediately in the lowest grades, and the school is considered to have been of great value to the railroads.

What little traffic there is between eastern Siberia and western Russia has heretofore gone by sea around

rian Railroad was to be opened to the public, extending as far east as the Yenisei River, on which section are some cattle-growing districts.

The Paris, Lyons & Mediterranean Railroad at several of its larger stations delivers notices of the arrival of freight by means mounted on bicycles.