Nov. 8, 1895.1

thereof as a standard of comparison in the establishment of through or local rates; and said notation fur-ther stated that said rates were forced by excessive competition of other lines."

They further say that, by inadvertence, the rate estab-lished from Chicago to Colorado on Class A was made two cents lower than the rate in existence from Chicago to Kansas City, but this was not discovered until some time after the publication of the tariff. The error would have been the ore concentral but full. have been at once corrected but for the fact that, when it became known, a general restoration of said non-com-pensatory tariffs was under consideration and about to be made.

The Receivers then state that they believe that the tariffs in existence to intermediate points, not affected by the reduced tariffs, are no higher than is just and reasonable for transportation to such intermediate points. They go on to say that in issuing the reduced points. They go on to say that in issuing the reduced tariffs two principal objects were in view, the immediate object being the protection of the Atchison against un-just and unwarrantable depletion of its traffic, and its shippers against the destruction of their business ; and the ultimate object being to compel all lines engaged in said rate war to promptly place the entire carload traffic in question upon a non-remunerative basis, to the end that a speedy restoration of rates might be accomplished, with reasonable assurance of their future stability; the latter and principal object being in support of the interstate commerce law, in respect to its most important re-quirements, and in aid of the beneficial objects proposed by its second, third and sixth sections.'

They then say that all lines immediately reduced their rates to the basis established by the last reduction of the Atchison; that the effect of this has been to bring about a conference between the various lines in interest and an agreement for a general restoration to tariff rates on Nov. 17 to a basis 15 or 20 per cent. below the tariffs in effect prior to the rate war; that these tariffs will apply at all intermediate points and will terminate the alleged violations of the fourth section, if any such violation ex-ists, but that they "are advised and believe that their action in the premises was not in violation of the fourth section, and that the true construction of the fourth section did not require them, in issuing said reduced Colorado tariffs, to reduce their intermediate rates, pro-vided such rates in themselves were just and reasonable; that the circumstances and conditions under which the traffic is conducted are not the same at said intermediate points, where no competition exists, as at said more distant points; that the competition in question was un-controlled by the interstate commerce law, although nominally subject thereto, and was entirely analogous to competition with foreign roads, with railroads not crossing state boundaries and with common carriers by water, not subject to said law, and that the rule stated in said section is not intended to apply, and by its terms does not apply, except in cases where the circumstances and conditions under which the business is conducted are the same."

Annual Report of the Second Assistant Postmaster General.

Mr. Charles Neilson, Second Assistant Postmaster Mr. Charles Neilson, Second Assistant Postmaster-General, has made his annual report and submitted it to the Postmaster-General. For the year ending June 30, 1885, the expenditures for mail transportation, including foreign mails, amounted to \$47,509,801, an increase of about \$1,000,000 over the expenditures for the previous year. Some of the other statistics are:

Mr. Neilson looks favorably upon pneumatic tubes, one of which is in experimental use at Philadelphia, and expects soon to be able to recommend the construction of such a conduit in New York City, between the Post Office and the Grand Central Station at Forty-second wagon costs now \$50,000 a year. The report recommends the establishment of four additional divisions for the rail way mail service; that the officers in charge of foreign mails be stationed at New York City; that the mileage of railroad routes be readjusted; that certain improvements be made in the construction of postal cars and that street cars carrying mails bear small flags indicating their character. Mr. Neilson holds that no one except a Government official should have authority to place upon a car the insignia of the official character of the car, and that this should not be borne by any car except when in actual mail service.

The department intends soon to take the mail bags from the European steamships arriving in New York harbor, at the Quarantine station, and to take them by a special vessel to the railroad stations in Jersey City and to other convenient landings for branch offices, etc., and to obtait contained latenting for branch onces, etc., so as to avoid the long delay now incurred in taking all foreign mails to the General Post Office. Mails will be assorted on the harbor boat. Mr. Neilson recommends the application of civil service rules to all officers and employees under his charge. A large part of the report is devoted to the street rail-

To guard against a danger that a switch connection service for the coming year is \$200,000. The experiments in the various cities, beginning at St. Louis, are reported Club, Chicago, Oct. 3, condensed. Digitized by Google

at length. One of the most successful experiments was that in Boston, where all the electric street lines are under one management. Ten postal cars in that city now supply 12 stations by regular hourly service. Chi-cago will soon have enough cars to serve about half the cago will soon have enough cars to serve about half the establishment of the street mail car line on the Thirp A venue cable railroad. This line runs near to a number of branch offices, and the mails of these offices are taken to and from the cars in an average time of two minutes, as compared with seven minutes formerly required to take the bags to the stations of the elevated railroad. In New York many of the branch stations are a long dis-tance from the General Post Office, and the Postmaster deems the saving in time by sorting letters on the road the most important benefit of the tart. deems the saving in time by sorting letters on the road the most important benefit of the change. If a letter mailed at Harlen to go north should, by mistake, be sent south (to the General Post Office), the clerk on the ar, who soon discovers the error, sends the letter back northward by the first car he meets, thus she letter back northward by the first car he meets, thus saving two hours. In Brooklyn the street car service is now so ex-tensive that wagons will soon be entirely abandoned, except for the route between the bridge and the General Post Office. Mr. Neilson says that the street car companies, with

only two exceptions, have treated the Government very liberally. He has had no regular appropriation, and has been able to pay (for space in cars) only such sum as could be spared from the mail-messenger fund. For could be spared from the mail-messenger fund. For transportation he generally pays no more than the wages of the motorman and conductor, in most cases less. Mr. Neilson thinks that, generally speaking, the cost of street car service will be only one-half that of wagon service. It is proposed, however, to continue the ex-penditures about as in the past and double the number of deliversity. of deliveries.

Details of Interlocking Apparatus on the Michigan Central.*

Mr. Miles, in opening, pointed out that in using a single line of pipe to operate both a switch and a lock the pipe is otrained mere than it ouglich of and has should be run where now only one line is used. The should be run where now only one line is used. The fact that although interlocking in side of the tower, that is, interlock-ing in the machine, has been brought to a high state of perfection, the locking done outdoors is imperfect and unsatisfactory. Continuing, he said : The only way to detect the separ-paration of the line between the eleverman to notice the absence of load on the lever, which is certainly a very unreliable source of informa-tion. Further, the lock pins ma switch-and-lock movement are neces-surity so short that when there is a little lost motion in the operating line, due to wear, the lever can be put "home" without the lock pin having entered the hole in the lock by With such defects in the switch-and lock movement is used in the lock by With such defects in the switch-

<image><text>



lock, the latter recently placed on trial by the Pennsyl-rania company, are positive in action and if proved re-liable will solve the difficulty of this weak point in mechanical interlocking. To get id of the danger and inconvenience of lost motion in switch connections the switch rods on the Michigan Central are made adjustable. With this arrange-natus, so as to be casily adjustable. With this arrange-natus, so is to be casily adjustable. With this arrange-matic so is to be casily adjustable. With this arrange-matic so is to be casily adjustable. With this arrange-matic so is to be casily adjustable. With this arrange-matic so is to so a synthesis and the solution of a plant. The origin of the solution of a plant, the life of the foundations depending to some extent upon the conditions of the soil. As such renewals are expensive, more lasting material was sought, and the efforts in that line have led to the adoption of concrete of a first. All of the leadout foundations used in this place, excepting those used under pipe carriers, were made of concrete. On a recent inspection these founda-tions were found to be perfectly rigid, and apparently as sound as the day they were put in. As it had been the practice of signal companies for some time previous to comment all crank and compensator wooden foundations torting number, erected by the Michigan Con-tral interlocking department, from that date unsit the beginning of 1884, were equipped in a like maner. Beng thoroughly convinced that wood was an unsat-isfactory material for foundations were made of concrete and all signal poles were made of or with the exception of two bracket poles used on the L. S. & M. S. The cover-ing over the leadout was made in eight foot sections and fastened down with lag screws, making it easy to remove the leadout was made in eight foot sections and fastened down with lag screws. This day, and was screwed in the winter, the total cost of it was and the fact that this plant had long pipe leads, and was errected in the winter,

LOGINGHOLD.												
ompensator	18	in.	wide	×	36	in.	long	x	40	in.	deen	
Crang.	-18	•••		×	20	••	· · ·	×	40	••		
Wheel	.14	**					••	Ŷ	36	**	**	
" 4 way P. R. R. st'd.	. 14	••				••	••	×	36	**	**	
Dwarf signal	12	• •	••	×	12	**	**	Ŷ	36	••	**	
Selector	12	••	"	x	12	•4	••		36		**	

the molds and finished by the addition of an oak top. Fig. 3 shows the construction of the carrier foundation. Concrete foundations are made in long boxes holding 18 molds each. There are two standard sizes, 11 in, wide and 16 in, wide the latter carrying from according to the immediate the latter carrying from according to the immediate of carriers. When larger than six way car-riers are needed, two 11-in, foundations, an 11-in, and 16-in, or two 16-in, foundations, as the case requires, are placed side by side, and a single cak top is placed over both, each foundation being of the same height and thickness. Two 14-in, holts are used for carrier coundations. The threaded end of the bolt projects downward through the bottom plank of the mold far enough to be of the length necessary to hold the oak top. The concrete for all foundations is made of three parts of stone, two of sand, and one of imported Porliand cement. The 11-in, foundation costs 45 cents, and the left. 50 cents.

enough to be of the length necessary to hold the oak top. The concrete for all foundations is made of three parts of stone, two of sand, and one of imported Porland cement. The 11-in. foundation costs 45 cents, and the 18 Dur first is. The concrete for all foundation costs 45 cents, and the 18 Dur first is. The pole of the second of the second of the second the first is. The pole of the second of the second of the second by four list in pipes kept in position by cast-iron brazes. The braces, base ceasting, and bearings for the semaphore arms, are held rigidly in place by babbit metal. The opening in the collars of castings through which the pipe passes is 1/2 in. larger in diameter than the pipe, and this space is filled with babbit metal. The base cast-ing rests on a concrete foundation and is held in position by four lin. bolts. The slugle arm pole costs 452 and the double arm 854. The balance lever casting A sected At Marshall this ommer. The pole consists of a single column of pipe made in three sections, which consist of six, five, and four-inch wrought iron pipe, respectively, the sec-tions of pipe being held together by swedged joints. Both upper and lower castings are held in place by babbit metal. The balance lever casting B being made in the form of a divided collar, is clamped to the post. A sheet is filled with concrete. This concrete extends above the surface of the ground and prevents the base of the pole and should be very durable, but as the single pipe post can be made for \$10 less than the four-pipe post, it is naturally preferred. I have attempted in this article to speak of that part mon practice. Of course, some of the methods and de-vies spoken of here were used on other roads before be-mg adopted by the Michigan Central that is not com-mon practice. Of course, some of the methods and be-vies spoken of here were used on other roads before be-mg adopted by the Michigan Central that is a agreat many roads use different methods, I felt that a s

An Electric Traveler with Three-Phase Motors.

Three-phase current electric motors, built by the Oerli Three-phase current electric motors, built by the Oerli-ton Works, Switzerland, are used for the operation of the famous machine shops of Escher, Wyss & Co., at Zurich Power is transmitted to them 11 miles, 24 motors, aggre-gating 420 H. P. drive tools, ventilators, movable drills, etc., 38 motors aggregating 250 H. P. operate lifting ap-paratus of all kinds, among them five 20 ton, eight 10 ton and seven 5 ton cranes. To provide for a break down of the lines a steam concertor bas been installed canable of the line a steam generator has been installed capable of driving the mor

suspended stand; they are started and reversed by one combination switch for each one. Resistances for speed regulation are not used. The motors have two distinct speeds which are as 1:2, sufficient for all practical purposes. The motors are running at about 1,000 revolu-tions per minute. The reduction of speed is effected by gear-wheels or worm gear. Worm gear and motor are connected by an elastic or non-rigid coupling, a friction pulley in the case of the lifting motor, which can be thrown in by the motorman and also by means of a light hain from below

In the accompanying drawings, which are taken from the French Revue Industrielle, c indicates the motor for longitudinal motion, g the one for transverse motion and the one for lifting.

TECHNICAL.

Manufacturing and Business.

The Virginia Bridge & Iron Co. was incorporated at Richmond, Va., last week, with Samuel Walton, of Tazewell, President; C. Edwin Michael, of Roanoke, Secretary and Treasurer, and Charles C. Wentworth, of Roanoke. Chief Engineer. This company has purchased the plant of and succeeds the American Bridge Co., whose works have been idle since March. The plant will operations in two weeks. Some contracts have œgin already been secured.

The Pennsylvania Bolt & Nut Co., Lebanon, is now employing 1,300 men and is doing the largest business in its history. It is building an important extension and dding new machinery.

The Buckeye Malleable Iron & Coupler Co. has just received orders to equip the passenger cars on the new Wellston & Jackson Belt Railroad, in Ohio, which is to be operated by electricity and steam, with the "Little Giant" Buckeye coupler.

The Lowe Bros Co., of Dayton, O., manufacturers of paint, report sales in their railroad department having doubled during the past year, and that the present sales and the outlook for future business are excellent.

The General Railway Equipment Co., incorporated with office in the Rookery, Chicago, has been formed for the purpose of handling heavy railroad supplies. The company has taken the agency for the Shickle, Harrison & Howard Iron Co., the Pencoyd Iron Co., the Bucyrus Steam Shovel & Dredge Co., the Pioneer Rail Renewing Co., the Wellman Steel Co. and other firms. The officers are Harlow N. Higinbotham, President; James H. Long, Treasurer; Eliphalet W. Cramer, Secretary; and Harry M. Higinbotham. Assistant Secretary.

J. A. Fay & Co., builders of wood-working machinery Cincinnati, O., report that they are doing an extremely large business in their railroad department, and at pres-ent are building machinery for the entire equipment of riving the more important tools, etc. A report on this installation in the Z. d. Oesterr. Ing.



& Arch. V. contains some data regarding the use of of the Cincinnati, Jackson & Mackinaw at Van Wert O., and machinery for several Eastern railroads. Their foreign business is growing rapidly. The Big Four Railroad has recently purchased of the & Arch. V. contains some data regarding the use of three-phase motors on traveling cranes in shops. Ready subdivision is the great boon of the employment of elec-tric power. It is, therefore, considered bad practice to install only one motor for the three directions of motion of the tweeter. It would a walk-and computer the Cincinnati Milling Machine Co., one of the new im-proved heavy universal milling machines made by that instant only one motor for the three directions of motion of the traveler. It would heedlessly complicate the mechanism, and diminish the ease of manœuvering the traveler. The motor would be worked part of the time, during longitudinal and transverse motions at only he to hits capacity, and consequently at a low exceeded director

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Anderson, DuPuy & Co. have erected an addition to their plant at McKee's Rocks, Pa., for the manufacture of tools, principally for railroad shops and railroad work.

Mayor Elliott and W. H. Loomis, for thirth proprietors of the National Paint Works, at Williamsport, Pa, have dissolved partnership, the latter retiring in order to devote his whole time to other business interests.

New Stations and Shops.

The work of re-establishing the Grand Trunk shops at London Ont. which had been removed to Brantford and Toronto, will begin at once. All the car building west of Montreal will be done at London. The shops at Point Edward are to be abandond.

The Southern Railway has purchased a new site for shops at Alexandria, Va. This fact caused the renewal of the old rumor that the company's shops were to be that the shops are to be removed from Manchester, which is just across the river from Richmond. The company will, however, build entirely new shops at Alexan Iria, and the old shops there will be at andoned.

The Chester & Lenoir road, operating between Lenoir, N. C., and Chester, S. C., will soon establish shops at Lincolnton, N. C. The town offered a site for the shops some time ago and the officers have decided to ccept the offer, it is stated, and will soon do so formally

Iron and Steel.

The Tennessee Coal, Iron & Railroad Company's Ox-The refinessee coal, from a harroad refinessee coal, from a harroad refinessee coal, from a harroad refinessee the second refined refinessee the second refinessee the second re August and September 120,000 tons of iron. Inquiries and orders that are now coming in indicate that the de-mand will soon be greater than ever before.

The Canadian Government is about inviting tenders for 4,000 tons of steel rails; 1,000 tons for the Prince Edward Island division, to be delivered at Summerside; and 3,000 tons for the Inter-Colonial, to be landed at Point Levis, opposite Quebec. Tenders are to be in by December 17. The rails are required for renewals and ordinary repairs.

Tests of Car Wheels.

A series of comparative tests of car wheels was made by the P. H. Griffin Machine Works and the New York Car Wheel Works begining Nov. 8. These tests consisted in subjecting chilled charcoal iron wheels made from special mixtures to the tests required by the European ada for steel wheels, as follows:

In subjecting controls characterized by the European roads for steel wheels, as follows: Anstrian State Railroad Test.-Wheel placed upright on heavy iron and stone foundation. Weight of 475 lbs. dropped from varying heights, commending at one meter and increa-ing by half meters to six meters. Wheel must stand the state Railroad Test.-Wheel placed borisontally on neavy iron and -tone foundation, tapering steel wedge placed in center. Weight of 440 pounds dropped from varying heights, commencing at one and a half meters, and increasing by half meters that the state of the state of the state of the neavy iron and -tone foundation. Weight of 2,000 lbs. dropped from a beight of four and a half meters, and increasing by half meters the state of the state of the state of the neavy iron and stone foundation. Weight of 2,000 lbs. dropped from a beight of four and a half meters. Wheel must state state state state of the state of the state from a beight of four and a half meters. Wheel must state its of the state state of the state of the being without breaking. Test to be continued unit Master Car Builders' Test.-Wheel placed horizontally on heavy iron and stone foundation. Weight of 140 lbs. dropped from a height of tweive feet. Required to stand from beings out even failway standard, weighting 500 lbs. M. Specificotions. Special quality 30 in engine track spoke wheels. Lake Shore & Michigan Southern failway standard, weighting 500 lbs. M. Specificotions. Special quality 360 millimeter (38-in.) double plate wheels weighting 500 lbs. Austrinoad specifications. Special quality 360 millimeter (38-in.) wheel, weighting 500 lbs. Huran and the stationed specifications. Special quality 560 millimeter (38-in.) wheel, weighting 500 lbs. Huran and state failroad specifications. Special quality 560 millimeter (38-in.) wheel, weighting 500 lbs. Huran and state failroad specifications. Special quality 560 millimeter (38-in.) wheel, weighting 500 lbs. Huran and state failroad specifications. Special quality 560 millimeter (38-in.) w

Empire State Express Engines.

New York Central locomotive No. 870, which has drawn the Empire State Express from New York to Altany for four years, has now been running 17 months since it May 36, 1864, making 148, 314 miles up to Oct. 18. During this time the engine has not been taken off the train or detained by any fault that could be attributed to the ngine

Engine No. 903, which came out of the shop April 3. 1894, has hauled the Empire State Express on one other divisions every week day from then until now. making 143,543 miles. During this time No. 903 has been detained twice by hot journals.

The Deep Waterways Commission

of the traveler. It would needlessly complicate the mechanism, and diminish the ease of manœuvering the traveler. The motor would be worked part of the time, during longitudinal and transverse motions at only 4 to 4, its capacity, and consequently at a low average efficiency. The Ocellikon Works install one separate motor for the content with one motor 18 H. P. for liting, one motor 0 H. P. for liting one motor 0 H. P. for liting

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