

brief description and the necessary information for the summer tourist of a number of vacation tours over the company's lines.

Stickney Junior, a 3 h.p. gasoline engine, is described and illustrated in an attractive little pamphlet sent out by Charles A. Stickney Company, St. Paul, Minn.

Master Boiler Makers' Duties.*

My 17 or 18 years of experience, and very largely in connection with locomotive work, makes it possible for me to attest to the ability and high character of the work that has been performed in this country by the Master Boiler Makers. The association is a young one, this being the second annual convention, and it has before it possibilities of great usefulness. There are two important things that men in your position have in charge. First of all, the most important, thing you have in charge is men. You should remember that you have attained your position through your own efforts very largely, but also partly through the opportunities that you have received at the hands of others. You have risen to a position where you are in charge of others, and the highest duty that you can perform is to perform your duty toward those who are subordinate to you, as well as those who are superior to you. The greatest service that you can perform both to your country and your profession, is to try to exercise your influence toward making upright men. You always realize the necessity of having good men in your employ. Whether you will have good men or not in your employ, and whether you will have skillful men in the future, depends upon what influence you are going to exert yourself. I feel confident from my personal acquaintance with you good men here, that you will perpetuate the high degree of skill and character that has brought the industry of locomotive boiler makers up to its high degree of efficiency.

You undoubtedly realize that there are a great many perplexing questions in connection with men. It seems to me that you who are directly in charge of men have it in your power, more than almost any one else, to maintain between those who are subordinate to you and those who are superior to you, relations that we all know should exist. I feel that you could do no higher or better work than to devote some portion of your time, at your work every day, in promoting that relation. It is more important to-day than ever.

In connection with your technical work, my experience carries me back to the time of wrought iron fire-boxes and wrought iron boilers, and I remember well all the difficulties we used to experience, particularly in this part of the country where we had bad water conditions to deal with, in connection with boilers, and I remember well, a great many years ago, the first steel boiler construction we had in this country. It was thought by everybody that steel was entirely out of the question, and there is no doubt that steel in this country was not entirely satisfactory. The use of steel, however, has made possible some things in boiler construction that we never dreamed of. Two hundred and twenty-five pounds pressure was never dreamed of. The capacity of the boiler has received its high development almost entirely through the ingenuity that has been exercised in the manipulation of steel. The large boiler constructions of to-day were thought to be entirely impossible 15 years ago.

TECHNICAL.

Manufacturing and Business.

The Kennicott Water Softener Co., Chicago, has secured the services of Prof. W. M. Bruce, formerly of the University of Chicago. Prof. Bruce assumed full charge of the laboratories of the company on June 1.

The Philadelphia Pneumatic Tool Co. reports a great increase in its sales for May over any previous month this year. Large orders have been received for both foreign and domestic shipment and many new customers have been added to the company's list during May. The demand for the Keller rotary drills and riveting hammers is particularly noticeable.

Pawling & Harnischfeger, Milwaukee, Wis., builders of traveling cranes, have leased and equipped the old Nordberg shops to replace their erecting shop burned on April 15th, and have placed them in as good shape to build cranes as before the fire. They report a large volume of business and good prospects for the coming months owing to the large number of new railroad shops which are now planned.

The London County Council at a recent meeting closed a contract with the British Westinghouse Company, amounting to about \$500,000, and calling for 200 tram cars which are to be used on its lines south of the Thames. This is the largest order ever given for electric cars in England. One-half of the cars are to be of the single-truck type. The remaining 100 will be double-deck, bogie-truck tram cars, which are to be delivered in 28 weeks.

The 20-stall roundhouse of the Norfolk & Western at Portsmouth, Ohio, has been equipped with the hot blast system of heating, the apparatus consisting of a large exhaust fan direct-connected to a horizontal engine and drawing air through a steam-coil heater built

up of 1-in. steam piping on cast-iron sections. Air is distributed throughout the roundhouse by brick flues and galvanized iron piping, so arranged that heated air may be delivered into each engine pit. The equipment was designed and installed by the B. F. Sturtevant Co., Boston, Mass.

The Pressed Steel Car Company of Pittsburg has made and shipped up to and including May 29, 1903, 100,467 cars. This figure represents the actual number of cars which are in service to-day manufactured by the Pressed Steel Car Company, and includes both steel cars and wooden cars for which steel underframes have been furnished. This company has, for some time past, shipped over 120 cars a day from its McKee's Rocks and Allegheny shops. In the manufacture of these cars from 45,000 to 50,000 tons of steel plates are used monthly. From the present outlook all previous records in car building will soon be eclipsed; as it is estimated that more than 38,000 finished cars will be made this year. Besides cars, orders are in hand for a large number of pressed steel body and truck bolsters and freight car and engine tender trucks as well as other pressed steel specialties for wooden and steel cars.

Iron and Steel.

The Erie Forge Co., Erie, Pa., has been reorganized and the capital stock increased from \$100,000 to \$150,000.

The Minneapolis Steel & Machinery Co., Minneapolis, Minn., has increased its capital stock from \$500,000 to \$750,000.

The New York Central & Hudson River R. R. offers for sale nearly half a million dollars' worth of second-hand bridges. Some of the material has already been taken out of track.

The Fitzhugh-Luther Co., Chicago, Ill., with \$250,000 capital, has been incorporated by Carter H. Fitzhugh, Frederick P. Luther and Silas H. Strawn, to make locomotives, cars and machinery.

The Woodward Iron Co. of Woodward, Ala., has elected the following officers and directors: J. H. Woodward, President; R. H. Banister, Secretary; S. Hipe, Treasurer; G. B. McCormack, A. H. Woodward, W. T. Bert, J. M. Vance, F. J. Hearn and S. Woodward.

The Dover Forge & Iron Co. has been organized at Canal Dover, Ohio, with the following directors: Ambrose Beard, F. H. Waldron, A. Weiss, H. W. Enck, James Rees, L. P. Wentz, C. F. Baker. The officers are as follows: A. Weiss, President; H. W. Enck, Vice-President; Ambrose Beard, Secretary, and Chas. F. Baker, Treasurer.

Henry A. Callan, Western Representative of the Latrobe Steel Company, died at his home in Chicago Sunday, May 31. He was 51 years old and had been with the Latrobe Company for seven years, previous to which he was with the Chicago Tire & Spring Co. He had been in ill health for some time and for the last few months was able to give but little attention to business. He was buried in Chicago on June 2.

The American Frog & Manufacturing Co., Kansas City, Mo., is in process of organization under the laws of Missouri, with a capital stock of \$250,000. The plants of the Cookson Manufacturing Co. and of the Kansas City Switch & Frog Works, in East Kansas City, have been bought and the new company has in course of erection on the property a complete switch and frog works, foundry and machine shop. The product will include frogs, crossings, switch points, switch stands, track materials and tools, forgings, and gray iron and brass castings. The company will also handle general railroad supplies and material. The officers are: F. W. Fritchey, Vice-President and General Manager; W. G. Humphrey, Secretary and Assistant Treasurer; J. E. Murphy, Manager of Sales. The general offices are at 302-303 New England Building, and the factory and store rooms are at 19th street and Manchester avenue.

Contract for Field Guns Going to Germany.

On recommendation of Gen. Crozier, Chief of Ordnance, the War Department has let a contract to the Erhardt Company, of Dusseldorf, Germany, for 50 modern field guns with carriages and limbers. Two hundred and fifty of these guns are needed, and most of them will be built in this country, but in order to get the quick delivery desired (7 months) it was found necessary to order some of the guns abroad.

The Block Signaling of the Subway.

The contract for block signaling the Interborough Rapid Transit Railway in New York has been awarded to the Union Switch & Signal Company. In the amount of money involved this is the largest contract for automatic block signaling ever let at one time. The conditions are in many respects novel, and the work will require new design and even invention in method and in detail. The Westinghouse electro-pneumatic system will be used, but the apparatus will be much modified. No date has been fixed for the completion of the work.

Boiler Notes.

Great care should be taken to lay out the holes in boilers, and drift pins should not be used, but holes should be reamed. The holes when drifted upset the metal, causing the sheets to spread and making a burr on the outside sheet on top. Boilers should be tested with hot water and calked tightly while pressure is applied. I have known cases where the hot water test has developed leaks which did not show when steam was up. When tested and calked with steam pressure up the small leaks would

not show on account of the evaporation by intense heat of boiler.—From a letter by Mr. F. W. Shupert, presented at the Master Boiler Makers' Convention.

Automatic Signals on the Michigan Central.

On the Michigan Central Railroad, with 559 automatic signals, on 279 miles of road, the number of signal failures and train delays reported by the signal inspectors in the month of April was 31. The causes of these failures and delays were: Wet track, 4; broken rail, 1; lightning, 2; broken wire, 9; defect in relay, 1; failure of battery, 1; train in block, 1; other causes, 12. No false clear indications were reported. The average number of failures and delays for the four months preceding April was 19¼ each month.

The new automatic signals just ordered by the Michigan Central will be put up this summer between Windsor, Ont., and Woodslee, Ont., 22 miles, and between Marshall, Mich., and Augusta, Mich. On the Canadian section most of the block sections will be two miles long and the distant signals will be on posts separate from the home signals and situated 3,500 ft. in the rear of the home signals. There is a length of about 60 miles on the Michigan Central on which the signals are now arranged in this way.

The Functions of Reheater Coils.

In a paper before the New England Cotton Manufacturers' Association, Mr. George N. Barrus gave the result of some tests with the reheater on three different compound engines. It was shown that the reheater re- evaporates a portion of the condensed steam coming from the high pressure cylinder and thus increases the volume of working fluid passing through the low pressure cylinder. Where sufficient reheating surface is provided the steam is superheated slightly on its way from the high to the low pressure cylinders, which will in turn reduce the cylinder condensation in the low pressure cylinder and result in a higher efficiency of the entire engine. This added efficiency is not realized, however, unless the drains from the reheater coils are returned to the boiler as the heat otherwise lost offsets the gain. The chief advantage of the reheater coils is the increase in power of an engine of given dimensions by their use. In the three tests above noted the average increase in capacity was slightly over 7½ per cent. The conclusion to be drawn is, that an engine without reheater coils must have larger cylinders than an engine with reheater, if the power is to be developed in each case.

Patching Fire-Boxes.

The following is from a report to the Master Boiler Makers' Convention, by Mr. James Murry, of the Wabash:

To patch a fire-box of an engine using good water is an easy task; but to patch a fire-box of a high pressure engine using bad water is a very difficult job in order to get good results; but in the latter case the method which has proved to be the best in this class of engines using bad water is as follows:

- 1st. After cutting out the patch, leave not more than ¼-in. lap from center of hole.
- 2d. Space rivet holes 1¼ in. center to center.
- 3d. Use ¼-in. rivets.
- 4th. Use a very light strip of sheet copper 1½ in. wide between patch and fire-box sheet, holding center of copper strip at center line of rivet holes.
- 5th. Leave not over 1 in. of lap on patch after the same is riveted.
- 6th. Patch should be at least ¼ in. thick at bottom of counter-sink. The head on the rivet should be high and should not spread more than the width of counter-sink. In some cases small patches are applied on large engines with patch bolts, using ¾-in. patch bolts, in order to get the strength in the head of the patch bolt, as smaller sizes are too weak; but in applying large patches riveting is preferred.

THE SCRAP HEAP.

Notes.

In a butting collision of freight trains on the Southern Railway near Bryan, Ala., on the morning of May 27, eight trainmen were killed; three enginemen, four firemen, and one brakeman.

The "Brotherhood of Freight and Baggage Men of America" has been organized at Lancaster, Pa. The officers are: President, Robert J. Neil, Lancaster; Secretary, Robert P. Rupley.

The Pennsylvania Railroad has appropriated \$300,000 for putting up new telegraph lines in the place of those of the Western Union Telegraph Co. which have been destroyed. It is said that the pole lines are designed to carry the wires of the Postal Telegraph Co., the poles however, to be in all cases owned by the railroad company.

Judge Lacombe, in the United States Circuit Court, at New York, has granted an order against the defendants in the complaint of W. K. Hearst against officers of the anthracite coal carrying railroads, to show cause why they should not answer certain questions propounded in the investigation of the complaint by the Interstate Commerce Commission. The order is returnable on June 10.

Civil Engineers for the Navy.

A Naval Board consisting of Civil Engineers R. F. Peary, Frank T. Chambers, Fred Thompson, Leonard M. Cox and Charles A. Wentworth will meet June 8 in New York to examine candidates for appointment

*From an address by Mr. S. D. Bush to the International Master Boiler Makers' Association convention.