

A BARROW WITH TWO WHEELS.

A new form of wheelbarrow has been invented by Henry Gries, of Egg Harbor City, N. J., in which are employed two wheels arranged tandem and two pivoted supporting legs.

The body of the barrow is supported upon the usual two side beams, at the forward end of which the small wheel is journaled, and near the rear end of which a larger wheel is journaled in depending brackets. In bearings on the under faces of the side beams, at the rear of the brackets, a shaft is mounted, which extends beyond the side beams. At the extremities of the shaft supporting legs are mounted, to the free ends of which cords are secured, which are reeved through eyes on the body and side beams, and provided with rings adapted to engage with pins on the ends of the handle.

When the barrow has received its load, the cords are drawn back and attached to the side beams, thus carrying the legs out of contact with the ground, as shown by dotted lines in the illustration. When the barrow is not in motion, the cords are disconnected and the legs permitted to drop to the ground. The legs are held in their supporting position by means of removable pins passed through above the shaft. Stops on the side beams, in front of the shaft, prevent the barrow from moving forward.

A barrow thus constructed, it is claimed, will enable one to carry heavier loads with less fatigue than heretofore, because the larger rear wheel supports the entire weight. The power exerted is used merely to direct and propel.

steam dome of unusual proportions. The effect is not displeasing, as the great size of the engine enables it to support such a large dome without destroying the generally good contour of the engine. It will be noticed, moreover, that the tender is of the English type, being carried on six wheels instead of on eight, as in the usual American practice. The rear pair, however, are equalized.

With an engine of such powerful proportions it is not surprising to learn that the Pennsylvania Railroad is hauling heavy trains at very high continuous speeds.



A TWO-WHEELED BARROW.

Three runs made in the latter part of last month are highly creditable and enable this particular train to take first place among the fast trains of the world. There are trains that make longer runs without a stop, as in the case of the Empire State Express in this country, and several crack expresses in England and France; but the load hauled is not so great, nor is the speed so great by from 14 to 10 miles an hour.

On July 18, 1899, this engine drew a train of seven cars, weighing 466,100 pounds, from Camden to Atlantic City, 58.3 miles, at an average speed from start to stop of 68.6 miles an hour. During this run one stretch of 25 miles was covered at the rate of 83 miles an hour.

Two days later the same engine drew a train of eight cars, weighing 538,850 pounds empty, or, including passengers, etc., 590,000, over the same run at an average speed of 66 miles an hour, 30.6 miles of the distance being made at the rate of 76.5 miles an hour.

On July 31, 1899, eight cars, weighing empty 526,650 pounds, and carrying 369 passengers, made the run at the rate of 69.3 miles an hour, and covered 30.6 miles at the average speed of 81.6 miles an hour, 24.9 miles of this distance being made at the rate of 83 miles an hour.

The Plastering of Wine.

The Lancet recently contained an encyclopedic article on sherry wine, being a report of its analytical commission. One of the most interesting points on which the writer touches is that of the so-called plastering of wine—that is, the addition of calcium sulphate to the must.

As regards sherry wine, it seems that the practice

Much has been said in the French medical journals during the last few years on the question of the injurious effects of plastered wine, and M. Lancereaux has gone so far as to assert that cirrhosis of the liver, usually attributed to the excessive use of alcohol, is in reality the result, not of alcohol of itself, but of the potassium salts contained in plastered wine, and that it does not result from the use of spirits. The writer asserts, however, that among the workmen employed in the sherry bodegas, who drink large quantities of plastered sherry every day, cirrhosis of the liver is unknown, while, on the other hand, it is frequent among the dram drinkers of England and other countries.—N. Y. Medical Journal.

Automobile News.

A plant to employ about six hundred skilled mechanics in the manufacture of an oil motor carriage is to be built at Pittsburg. The Lanchester motor will be built.

A Western motor carriage owner is having his barn enlarged for the storage of motor carriages. He will build a pit from which the motor and mechanism of the motor carriage can be easily inspected and repaired.

The Haynes-Apperson carriage, which left Kokomo, Ind., arrived in Brooklyn on August 5. The journey was made in twenty-one days, but eleven of them were devoted to business matters.

The tires were punctured twice, but there were no other accidents.

Several new publications on the automobile have already appeared or are scheduled to do so. On September 12 the first issue of The Motor Age will appear. This is a continuation of The Motor Vehicle Review of The Cycle Age. The automobile news published in The Cycle Age has been excellent and we shall be glad to welcome this section which is to be published separately and enlarged. We have already referred to The Automobile, an illustrated monthly, the first number of which will appear by October 1. Another journal called The Automobile, also published in New York city, has already appeared, and we shall notice the same as soon as the second edition of the first number has appeared. In addition there are promised The Automobile Review, Speed, and The Autobain. The last three are to be published in Chicago. The Horseless Age has been published in New York for several years and is enjoying a well-deserved popularity.

The German vs. American Pound Weight.

In compliance with a Department instruction, Consul Brodowski, under date of July 7, 1899, transmits the following explanation regarding the continued use of the pound as a weight measure in Germany and the relative values of the German and American pound:

The metric system of weights and measures was introduced into Germany shortly after the Franco-German war, but the Germans in general in their everyday dealings continue the use of the pound almost exclusively, especially older people, who in their younger days were accustomed to this expression. All my bills

here for meat, groceries, etc., are made out in pounds; and a scale of the newest construction, which I purchased to verify the weights of goods delivered, indicates both kilogrammes and pounds. One kilogramme is exactly two former German pounds, and such German pound therefore equals 1.1023 American pounds. If a German firm,

especially a smaller one, which cannot afford to employ an English-speaking clerk, writes its letter to the United States in German and orders its goods in pounds, meaning German pounds, and the American firm makes its estimate in American pounds, the result will be trouble and misunderstanding. It is well, therefore, for our people in their correspondence with German firms to make a note of the difference between the German and the American pound.

An Italian statistician has computed by means of railroad returns that the foreigners who visit Italy spend annually \$61,000,000 in that country.

NEW EXPRESS LOCOMOTIVE FOR THE PENNSYLVANIA RAILROAD.

The Pennsylvania Railroad Company have recently turned out from their Altoona shops three very handsome locomotives known as Class E-1, which are intended for working their fast express trains which run between Philadelphia and Atlantic City.

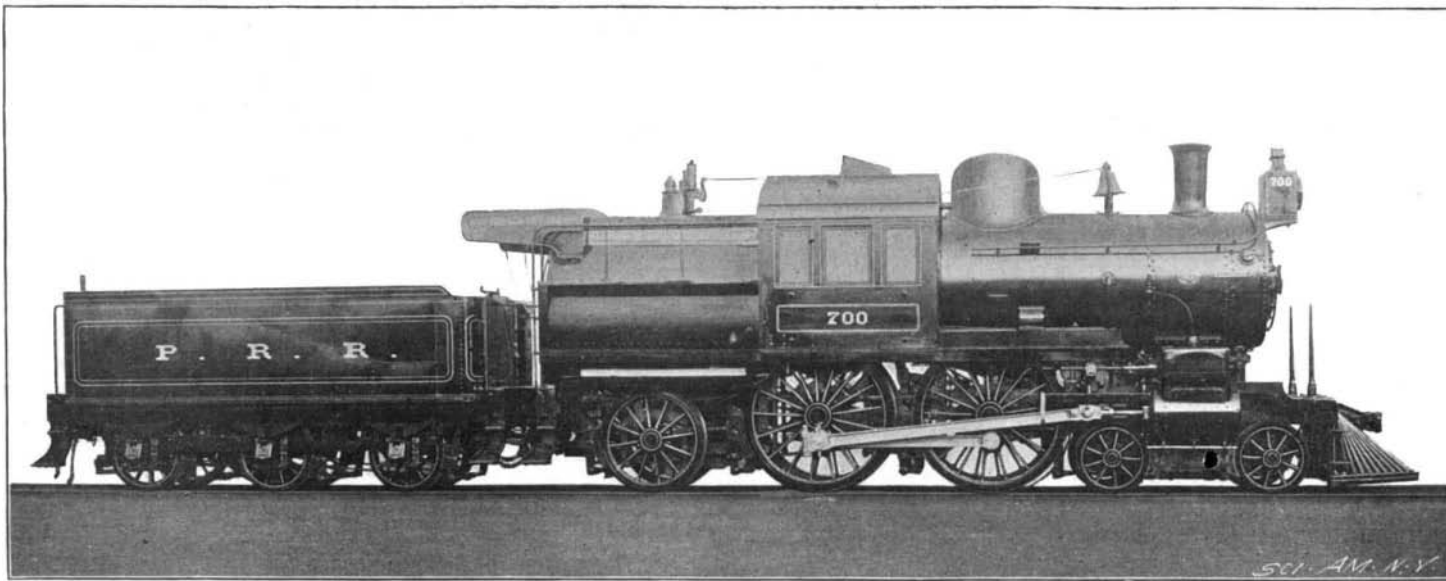
We have had occasion to refer at times to the remarkable speed which for two years past has been accomplished by the Philadelphia and Reading Railroad between these two cities, the distance from Camden to Atlantic City (55.5 miles) being covered at the rate of from 69 to 74.4 miles an hour. On these runs the speed for several miles would frequently rise to over 80 miles an hour; indeed these high speeds were of daily occurrence. The engines which hauled these trains were known as the "Atlantic" type, and were built under the Vaucrain compound patents. The pair of high-pressure cylinders were 13 inches in diameter and the two low-pressure cylinders 22 inches in diameter, the common stroke being 26 inches. The drivers were 7 feet in diameter, and the total heating surface was 1,836 square feet. The train load varied from five to seven cars.

The distance from Camden to Atlantic City by the Pennsylvania Railroad is 58.3 miles, and the company have put in service recently the very powerful engine shown in our illustration, which has been making some remarkable runs which, considered as feats of heavy, high-speed express service, surpass the work which has been done on the rival line; however, as will be seen from the subjoined particulars, the Pennsylvania locomotives are considerably larger than the "Atlantic" compounds.

The class E-1 engines are of the simple type, with cylinders 20 1/2 inches diameter by 26 inches stroke. The drivers are 6 feet 8 inches in diameter, and the pair of trailing wheels,

beneath the firebox, are 56 inches in diameter. The boiler is a huge affair, with a 67-inch barrel and a 42-inch combustion chamber. There are 218 square feet of heating surface in the firebox and the total heating surface is enormous, reaching 2,320 square feet. There are three hundred and fifty-three 1 1/4-inch tubes, the firebox measures 104 by 96 inches, and the grate area is 69.23 square feet. The total weight is 173,450 pounds, of which 101,550 pounds is on the drivers.

While the engine is distinctly of the "Atlantic" type, there are certain features which are novel, such as the including of the sand-box and steam dome under one casing, which results in what looks like a



NEW EXPRESS ENGINE FOR THE FASTEST TRAIN IN THE WORLD.

Cylinders, 20 1/2 by 26 inches; drivers, 6 feet 8 inches; heating surface, 2,320 square feet.

has been followed from a very remote period, since classical authors refer to it as an ancient one. It is stated that the sherry growers find that, as a rule, they do not produce a good article of sherry if they omit to resort to this addition of calcium sulphate.

The writer mentions several theories to account for the improving effect of the plastering, but the one to which he inclines is that of the decomposition it causes of the tartrates contained in the grape juice, whereby tartaric acid is set free and attacks the ethyl of a portion of the alcohol, giving rise to the production of an ether, ethyl tartrate, to which in great measure the wine owes its bouquet and its special flavor.