

A HORSELESS CARRIAGE OF 1827.

In the London Observer of December 9, 1827, appeared a description of a steam carriage invented by a Mr. Gurney, and which is said to have been successfully tried in Regent's Park. As shown in the accompanying views, for which we are indebted to the Engineer, it will be seen that the vehicle was designed to serve the purposes of the horseless carriages on which so many inventors are now at work. The description of this steam carriage, written nearly seventy years ago, embraced the following interesting details and reflections:

It has a tubular boiler, constructed upon philosophical principles, and upon a plan totally distinct from anything previously in use. Instead of being, as in ordinary cases, a large vessel closed on all sides with the exception of the valves and steam conductors, which a high pressure or accidental defect may burst, and involve in destruction those in its neighborhood, it is composed of a succession of welded iron pipes, perhaps forty in number, screwed together in the manner of the common gas pipes, at given distances, extending in a direct line and in a row, at equal distances from a small reservoir of water, to the distance of about a yard and a half, and then curving over in a semicircle of about half a yard in diameter, returning in parallel lines to the pipes beneath, to a reservoir above, thus forming a sort of inverted horseshoe.

This horseshoe of pipes, in fact, forms the boiler, and the space between is the furnace, the whole being inclosed with sheet iron. The advantage of this arrangement is obvious, for, while more than a sufficient quantity of steam is generated for the purposes required, the only possible accident that could happen would be the bursting of one of these barrels and a temporary diminution of the steam power to one-fortieth part. The effects of the accident could, of course, only be felt within its own inclosure, and the engineer could, in ten minutes, repair the injury by extracting the wounded barrel and plugging up the holes at each end, for which purpose he would be provided with the proper materials; but the fact is, that such are the proofs to which these barrels are subjected before they are used, by the application of a steam pressure 500 times more than can ever be required, that the accident, trifling as it is, is scarcely possible; and the boiler now in use in Mr. Gurney's premises, on a similar construction, has remained as sound as ever after being at work every day for two years. Having thus described the boiler, we hope intelligibly, and having, we trust, removed all prejudice on that head, we shall now endeavor to render the other details equally clear. The boiler, we need hardly tell our readers, is the seat of the vital principle in the steam engine, for without that steam could not be engendered, and of course the works must stand still—our scientific friends will excuse us for being thus diffuse—and it will appear not a little singular that Mr. Gurney, who was educated a medical man, has actually made the construction of the human body and of animals in general the model of his invention. His reservoirs of steam and water, or rather "separators," as they are called, and which are seen at the end of our plate, are, as it were, the heart of his steam apparatus, the lower pipes of the boiler are the arteries and the upper pipes the veins.

The water, which is the substitute for blood, is first sent from the reservoirs into the pipes, the operation of fire soon produces steam, which ascends through the pipes to the upper part of the reservoir, carrying with it a portion of water into the separators, which, of course, descends to the lower part, and returns to fill the pipes which have been exhausted by the evaporation of the steam—the steam above pressing it down with elastic force, so as to keep the arteries or pipes constantly full, and preserve a regular circulation. In the center of the separators are perforated steam pipes, which ascend nearly to the tops, these tops being, of

course, hermetically closed, so as to prevent the escape of steam. Through these pipes the steam descends with its customary force, and is conducted by one main pipe all along under the carriage to the end of the platform, which is, in point of fact, the water tank, where it turns under till it reaches two large branch pipes which communicate with the cylinders, from which the pistons move and give motion to the machinery. The cranks of the axle are thus set in action, and the rotary movement is given to the wheels. By the power thus engendered also a pump is worked—which is more clearly explained in our references—and which, by means of a flexible hose, pumps the water into the boiler, keeping the supply complete. The tank is to be replenished at the end of certain

stages, by a very simple process; but it is calculated that it will hold sufficient—sixty gallons—for one hour's consumption. The furnace, too, within the boiler is also calculated to contain a sufficient supply of coke or charcoal for a similar period, and may be fed with equal facility.

So much for the boiler and its adjuncts, and now to the coach itself. In point of form, this vehicle is similar to the ordinary stage coaches, but rather larger and stands higher, the roof being nine feet from the ground.

The seats for the outside passengers are as usual; and

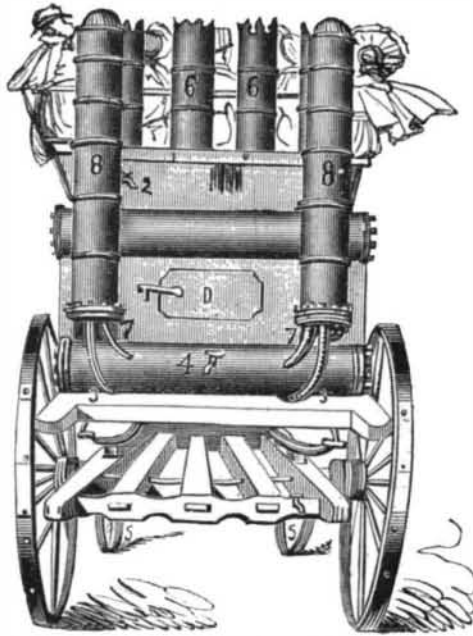


Fig. 2.—HORSELESS CARRIAGE OF 1827—REAR VIEW.

here it may be asked, whether those who ride in the back seats are not liable to be annoyed by the smoke from the chimneys of the furnace? To which we say no; for in the first instance, there is no smoke, coke or charcoal only being used; in the second, the chimneys are above the level of the seated passenger; and lastly, the motion of the carriage will always disperse the heated rarefied air coming from the flues.

The present carriage would carry conveniently six inside and fifteen outside passengers, independent of the guide, who is also the engineer. In front of the coach is a very capacious boot, while behind, that which assumes the appearance of a boot is the case for the boiler and the furnace, from which, we may add, no inconvenience whatever is experienced by the outside passenger, although in cold weather a certain degree of heat may be obtained if required. The length of the vehicle from end to end is 15 feet, and with the pole and pilot wheels 20 feet. The diameter of the hind wheels is 5 feet, of the front wheels 3 feet 9 inches, and of the pilot wheels 3 feet. There is a treble perch by which the machinery is supported, and beneath which two propellers in going up a hill may be set in motion, somewhat similar to the action of a horse's

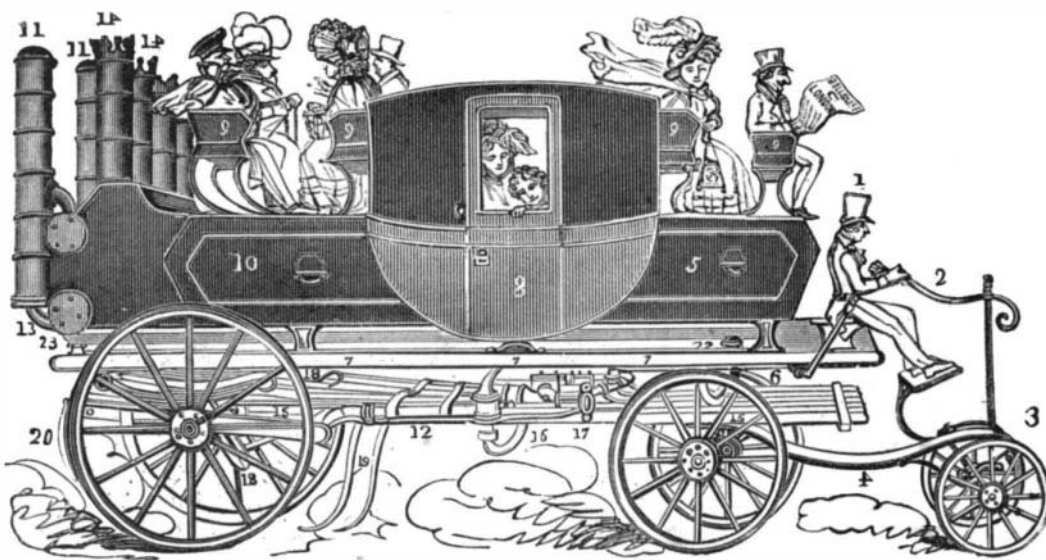


Fig. 1.—AN ENGLISH HORSELESS CARRIAGE OF 1827.

legs under similar circumstances, which assist the power of the engine in forcing the carriage to the summit, in case of snow, etc.

The total weight of the carriage and all its apparatus is estimated at one and a half tons, and its wear and tear of the road, as compared with a carriage drawn by four horses, is as 1 is to 6; the mischief done by the four horses, the feet of which act as picks, being five times greater. When the carriage is in progress the machinery is not heard, nor is there so much vibration as in an ordinary vehicle, from the superior solidity of the structure. The engine has a 12 horse power, but may be increased to 16; while the actual power in use, except in ascending a hill, is 8 horse.

Explanation of Fig. 1.—1. The guide and engineer.

2. Handle which guides the pole and pilot wheels. 3. Pilot wheels. 4. Pole. 5. Fore boot for luggage. 6. "Throttle valve" of the main steam pipe. 7. Tank for water, running from end to end, and the full breadth of the carriage; it will contain sixty gallons of water. 8. Carriage, capable of holding six inside passengers. 9. Outside passengers, of which the present carriage will carry fifteen. 10. Hind boot, containing the boiler and furnace. The pipes extend from the cylindrical reservoir of water at the bottom to the cylindrical chamber for steam at the top, forming a succession of lines something like a horseshoe turned edgewise. The steam enters the "separators" through large pipes, which are observable on the plan, and is thence conducted to its proper destination. 11. "Separators." 12. Pump. 13. Main steam pipe. 14. Flues of the furnace, four in number. 15. Perches, of which there are three, conjoined, to support the machinery. 16. Cylinders; there is one between each perch. 17. Valve motion, admitting steam alternately to each side of the pistons. 18. Cranks, operating on the axle. 19. Propellers, which, as the carriage ascends a hill, are set in motion, and move like the hind legs of a horse, catching the ground and then forcing the machine forward, increasing the rapidity of its motion and assisting the steam power. 20. The drag. 21. The clutch, by which the wheel is sent round. 22. Safety valve. 23. Orifice for filling the tank.

Explanation of Fig. 2.—1. The furnace door. 2. Gage cocks. 3. Steam pipes. 4. Blow cock. 5. Cock for emptying the water tank. 6. Flues of the furnace. 7. Pipes through which the water is propelled from the separators into the boiler. 8. Steam separators.

Advertising in the Drug Business.

Mr. M. W. Ryerson contributes to the Bulletin of Pharmacy a paper on judicious advertising for the retail druggist, giving the following examples of what an effort of this kind has accomplished:

"J. C. Ayer began life as a drug clerk and advertising his Cherry Pectoral in a small way, but when he died he left a fortune estimated at \$15,000,000. C. I. Hood began 'that tired feeling' in a small way in 1870, and is now rated as a millionaire. A. B. Scott, of Scott & Bowne, was working at a moderate salary twenty years ago; to-day his firm is spending \$1,000,000 a year for advertising. Brent Good, proprietor of Carter's Little Liver Pills, started on a cash capital of \$8.40, and now cannot spend the money he is making; and many others the same way. Judicious advertising has made it possible for Seabury & Johnson to spend annually \$50,000 on popularizing their products, W. T. Hanson Company \$500,000 on Pink Pills for Pale People, and Wells, Richardson & Company \$600,000 on Paine's Celery Compound. Dr. A. L. Helmbold was at one time a retail druggist in Philadelphia. He finally began the manufacture of his Buchu Compound, and put his entire surplus capital of \$2,000 into a contract for one month's advertising, and in a short time, comparatively, was enjoying a clear income of \$150,000 per year, besides spending as high as \$250,000 annually in advertising. Orange Judd, the publisher, owed his first success largely to the mistake of his office boy in ordering a

page advertisement instead of a column, as instructed. Moses P. Handy, of the Chicago Times-Herald, says: 'When I talk to a man who has made a fortune by advertising, I wonder that anybody who has anything to sell does not go and do likewise. One man told me a day or two ago that his concern, with a nominal capital of \$160,000, only \$30,000 of which was paid in, has divided in a single year among three partners profits to the amount of \$750,000, and that exclusive of salaries of \$50,000 and \$25,000 drawn by two members of the firm. Ten or twelve years ago this man was a drug clerk on a small salary in a Western town [I wonder if it was in Nebraska], and is now one of the millionaires of New York. Without advertising I might have made a living,' he said, 'but it was advertising

that made me rich, and advertising a very simple commodity at that.' Another man, who bears similar testimony, tells me that his concern, which began by investing \$10,000 a year in advertising, increased the amount every year according to the increase of business, and this year expects to spend \$1,000,000. Still another, who confined himself entirely to the newspaper and magazine in the exploitation of his specialty, never having touched a dead wall, a fence, or the broad side of a barn with poster or paint brush, and never employing a salesman, has a cool million salted down in real estate, keeps a yacht, and spends most of the year abroad in luxurious living."

ROQUEFORT cheese is made of sheep's milk.