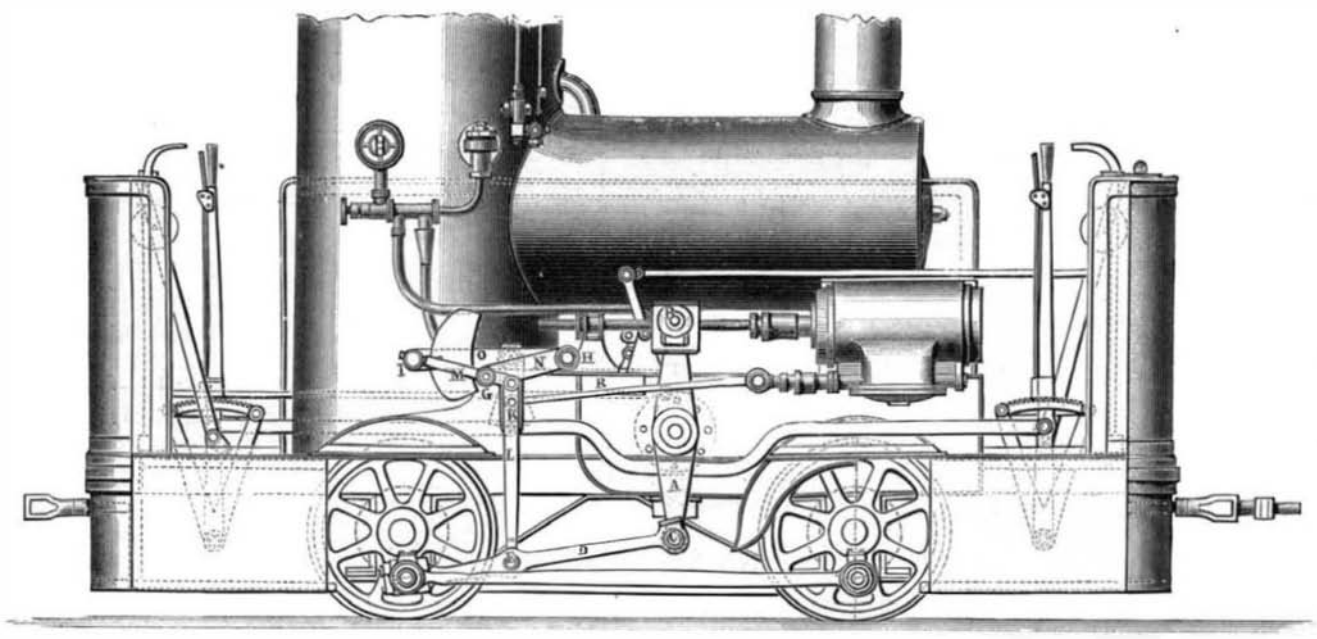
NEW TRAMWAY MOTOR.

The accompanying engravings represent a very successful little motor used in propelling tramway cars. In the month of March, 1877, sixty-five locomotives of this style were in use in Strasbourg, Hamburg, Geneva, Paris, Milan, Rome, Madrid, and Turin. It is stated that trials made with this and other locomotives in Berlin, Cologne, Porte, etc., resulted in a victory for the Brown locomotive.

The movement of this machine is very quiet and regular, the mechanism is simple, and the locomotive can be attended to by a single person. The exhaust makes little noise, in fact is hardly perceptible. The gentleness of the action is due to the transmission of the motion by the lever, A, which gives a perfect equilibrium to the moving parts. There are controlling levers at both ends of the locomotive, so that in whatever direction the train moves the engineer can always sit in front. The fire box is furnished with an inclined grate, upon which the descent of the coal is very regular. A single charge of coal lasts about one hour.

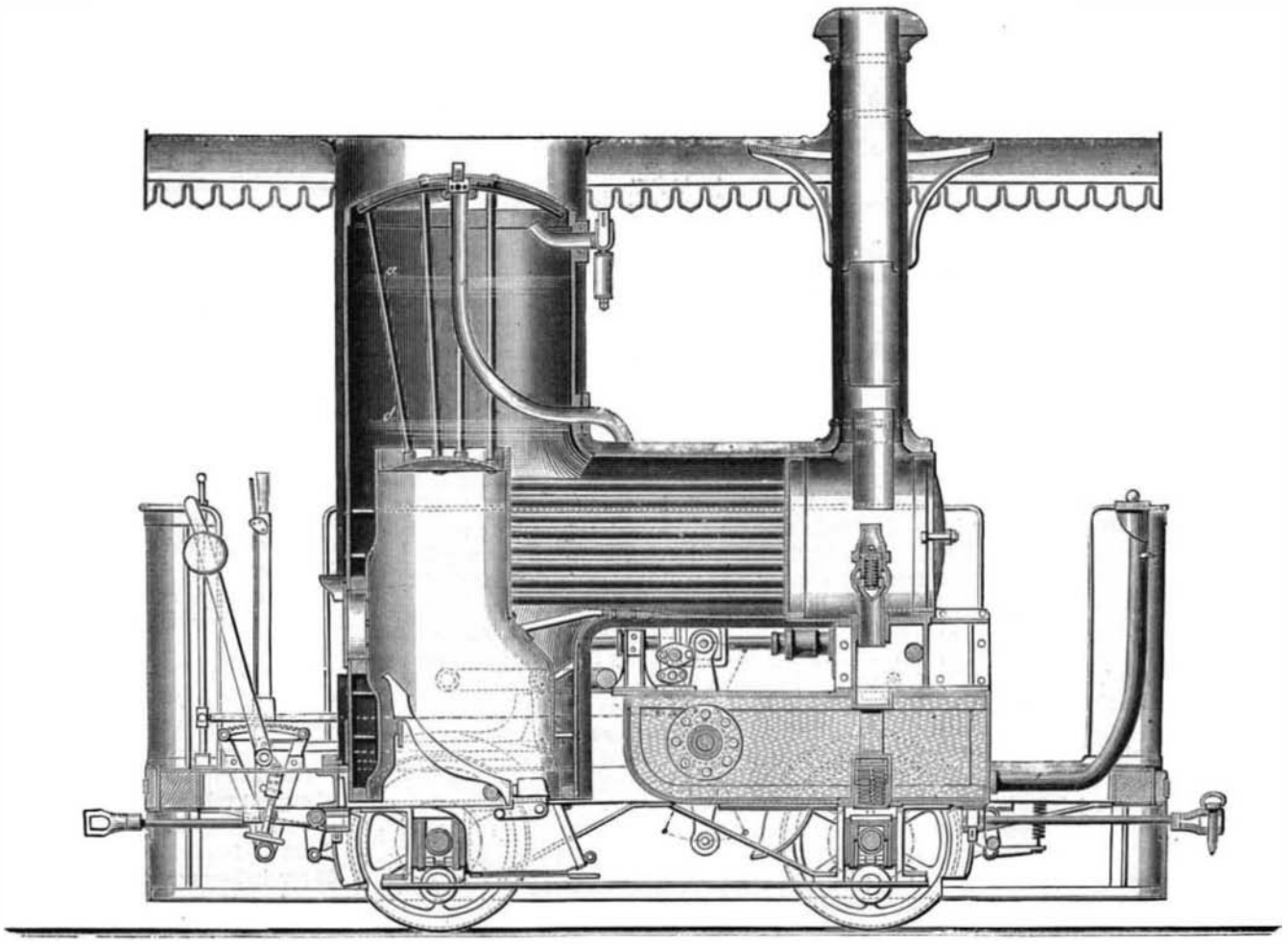


NEW TRAMWAY MOTOR.

The boiler is of the style generally used in small locomotives, but the vertical part is so large that the level of the water can vary about nineteen and a half inches, which corresponds to about seventy-five gallons. The boiler is filled at the station, and the engineer need not waste time during the trip to refill the boiler, and it is therefore possible for a single person to run the engine, as has been proved at Strasbourg. The distribution of the steam in the cylinders is obtained by means of peculiar mechanism which receives its motion directly from the crank. By this means the expansion can be regulated to any desired degree. With a boiler pressure of 150 lb., the steam may be cut off early in the stroke. In Strasbourg and Beziers, where the grade is from one to one and a quarter inches, these machines draw four cars with 200 to 250 passengers. In order to diminish the noise of the exhaust steam it is allowed to pass into a vessel situated between the cylinders and containing water. The pressure in this vessel is almost constant, which causes the steam to escape continuously and with noise. The chimney consists of two sheet iron cylinders, between which there is a packing of mineral wool, which prevents all vibration.

The steam passes from the vessel between the cylinders into a series of short tubes placed in the chimney. At every stroke of the piston a good draught is obtained, which superheats the smoke and gas, and makes it invisible at the top of the chimney.

If the normal atmospheric temperature is higher than 50°, this method will answer, but in winter a surface condenser, over which the steam passes after leaving the cylinder, is required. The axle boxes are constructed so that the smallest curves can be turned without difficulty.



TRAMWAY MOTOR—LONGITUDINAL SECTION.

A COAT of gum copal varnish applied to the soles of boots and shoes, and repeated as it dries until the pores are filled and the surface shines like polished mahogany, will make the sole waterproof, and it lasts three times longer.

Where did the Israelites Cross the Red Sea?

This query, some explorer has suggested, may be solved with our present appliances for fathoming depths. The *Christian at Work*, alluding to the subject, says that three or four theories prevail as to the spot the crossing was made.

The Arabs say several miles south of Suez, between the promontory of Atakah and Ayan Musa, where the Red Sea is about ten miles wide. This view is strengthened by the Bible reference to the walls of water on both sides of the army, but, as Dr. Schaff says, "it is impossible that six hundred thousand armed men, with women and children, and their herds of cattle, could have crossed so great a distance in one night without a prodigious accumulation of miracles." Another theory places the crossing at the head of the gulf, a little north of Suez. Here is a shoal channel, four miles long and less than half a mile wide, in which there are several islands and sand banks, bare at low water. The Israelites might easily have crossed here; indeed, so strong is the tide that a strong east wind—such as we are told Jehovah caused to "blow all the night"—would have made the walls of water of which the Bible speaks. This place is generally favored by modern biblical critics. The reader will recall the fact that it was here that Napoleon, deceived by the tidal wave, attempted to cross in 1799, and, in his own words, nearly became a second Pharaoh. As we have said, it is not likely that any of the rusty old chariots, nor so much as a broken axle or harness buckle, will ever be brought to light. Possibly some papyrus may be found with a private record of the wonderful event. But the search for this would be about as uncertain as the hunt after the precious stones that Aaron wore in his breastplate.

Proposed River between Manchester and Liverpool.

A meeting has been held in Manchester for the purpose of considering the expediency of the proposal for the construction of a tidal navigation for seagoing steamers between Manchester and Liverpool. At this meeting Mr. Hamilton Fulton, the engineer, explained the nature of the proposal, and stated that the length of the channel between Manchester and Liverpool would be about 36 miles. The minimum width of the navigation would be 200 feet, and the minimum depth at low water spring tides would be 10 feet, or about 2 feet more water than exists at low water over the bar at the mouth of the Mersey. A basin would be provided at the Manchester end of 81 acres with 16,000 lineal feet of well constructed wharves, and all requisites for shipping accommodation on a large scale. The estimated cost of the undertaking is £3,500,000. Mr. George Hicks, of Manchester, presented a statement as to the probable revenue, which, if realized, would give a large return upon the proposed outlay.

Owing to the inability of several members of Parliament and others to attend, the further consideration of the subject was adjourned.—*Warrington Guardian.*

Crushed by an Anaconda.

One of the most intrepid wild beast tamers in Europe, Karolyi, a Magyar of colossal stature and extraordinary physical strength, has recently fallen a victim to a dread contingency of his perilous profession. He was performing before a crowded audience in Madrid the other day one of his most sensational feats, which consisted in allowing a huge boa constrictor, over twenty feet in length, to enfold his body in its tremendous coils, when suddenly a piercing cry escaped him, which was greeted by the public with a round of applause, under the supposition that its utterance constituted a part of the performance. It proved, however, to be the outcome of a strong man's death agony. The gigantic snake had tightened its coils and crushed poor Karolyi's life out of him with one terrific squeeze. As his head fell back and his eyes became fixed in a glassy stare, the plaudits died away, and were succeeded by the stillness of utter consternation. The snake and its lifeless victim swayed for a second or two of inexpressible horror and then toppled over on the boards of the stage; but the boa did not in the least relax his grip upon the corpse, which remained for more than an hour imprisoned in its hideous thraldom, nobody daring to approach the lithe monster, of whose powers such appalling proof had been given. At length it occurred to one of Karolyi's attendants to place a bowl of milk in a cage within sight of the mighty serpent, which slowly unwound itself from the dead body and glided into its den, irresistibly tempted thereto by its favorite dainty. A post mortem examination of the unfortunate athlete's remains discovered no fewer than eighty-seven fractures of his bones effected by the constriction of the serpent's coils.