

of one mile and a half; the same Engine acts upon both these planes.

"Taking my station upon the last of a long line of wagons, the foremost of which, being previously attached to the rope, and the proper signal being given, I found myself in a moment hurried up the ascent with a surprising and unexpected velocity, which brought me in a few minutes, to the summit, whence I was conveyed down the western side with the same speed; so that this heavy train of wagons was transported over this formidable barrier; a distance of three miles and a quarter, in the space of a few minutes.

"The prompt, vigorous, and rapid style, in which this movement is performed, is eminently calculated to excite both surprise and delight, and affords a striking contrast to the tardy operations of a Canal similiarly circumstanced.

"The engines are simple in their construction, neat and light, of five or six horse power, and each one generally takes a train of ten or twelve loaded wagons. The *conductor* executes the various manœuvres with such surprising facility, that one would almost imagine the beautiful machinery to be endowed with intelligence. The whole train is made to advance, to recede, to turn out, at pleasure; and when arrived at its destination, the engine immediately takes a position *in the rear of the line of wagons*, pushes them onward to the *Shutes*, where the coals are discharged, and finally taking them in its train, returns back upon the same route."

The experiments with Locomotive Engines, above enumerated, and those which will presently be submitted, were made with wagons of the old construction. Mr. Ross Winans, an American citizen, has invented a Rail-way Car, which by the addition of anti-friction wheels, will enable a given power acting upon a horizontal Rail Way to transport a weight perhaps twice as great as by the ordinary Rail-road wagons heretofore used.

*Extract from the Liverpool Mercury of 17th July, 1829.*

"Our readers may form a tolerable idea of the ease with which this (Winans') carriage is moved, by the fact, that on a dead level, a weight of *sixteen pounds*, drew it forward at the rate of about three miles in the hour, while it was laden with *three tons* of iron, which, including the weight of the carriage, amounted to *three tons fifteen hundred weight*. With fifteen ordinary sized persons standing and sitting in the wagon, two men by means of the winches, urged it forward at a rate exceeding thirteen miles in the hour, and we were told by a