Mr. S. T.

I have your paper of last week, I observe a comparative view of the engines of the construction of Messrs. Boulton and Watt, and those of Newcomen's plan, conducted under the direction of Mr. S. T., in which the writer, with an appearance of candor, inclines to give the former's preference.—The purpose of argument, I will most solemnly admit the data from which he deduces his calculations to be true, and proceed to offer to the reader's attention two circumstances, which your last week's correspondent has omitted; one of which I presume he could not possibly be ignorant of, but as it would militate against the case he endeavours to prejudice, he might deem it irascible to pass unmentioned. He has only brought into comparison the expense or consumption of fuel, but it is well known to the gentlemen in the coal trade, that there are various other expenses attending fire-engines—among others, those of furnaces and repair of boilers. Now, as the advantages attending Messrs. Boulton and Watt's invention are not derived from any peculiar construction of, or mode of fitting their boilers, but in a saving and better application of steam; it follows, that if their engines, in raising equal columns and quantities of water, consume less fuel than half the fuel used by the engines erected by Mr. S. T., whose correspondent admits, that then less than half the area of boilers will be required. For instance, in the engine at Rotherham, they find it convenient to use at one time two boilers of about 15 feet diameter each, but from the conclusion we have drawn, one boiler of less than 15 feet diameter would do the same work. There would therefore be a saving of the daily wages of one fireman (or fire-tender) (assuming the engine to be worked only a few hours in the day, but if it be required to do much more than 12 hours in the 24 which could always be the case in fishing) there would then daily be the wages of two men. But in larger engines, where they find it convenient (to keep their boilers within such a time as is eligible to recid) to work with three boilers at once, one boiler of an inconvenient size would answer the same end in Messrs. Boulton and Watt's engine; which would therefore, according to circumstances, produce a daily saving of two or four men, which, with the extra repairs of boilers, removal of patent bars, etc., would in the course of a year amount to an inconsiderable sum.

The other point unconsidered is, that the experiment at Long Benton was made with coals of a good quality, or cinder-burning coals (such as producer cinders) which, with a consumption of two cwt. are found, by experiment, to evaporate 15 or 16 cubic feet of water, whereas the Hawksworth cinder coals are open burning coal (burning to white ashes) and only evaporate 10 or 12 cubic feet of water to the cwt. of coals consumed; besides, in the calculations of the steam engines at Hawksworth, the coals consumed in making up the fires and during several intervals when the engines were at rest for want of water are included, and which, if I am rightly informed, was not the case at Long Benton. But setting this aside, and only taking into account the difference of the effect of the coals, which are as 15 to 10 or 12 to 9, it follows, that Hawksworth's new engines, in place of consuming 4 ton 16 cwt. would only have used of Long Benton, or other caking coals, 3 ton 12 cwt. in raising 351 cubic feet of water to a height of 250 yards, which is Long Benton's new engine, your correspondent says, required 2 ton 2 cwt., a difference in favour of the former of 1 ton 9 cwt. Therefore, supposing the engine to be altered to Messrs. Boulton and Watt's construction, paying them as usual one-third of the saving in fuel, or 1 ton 3 cwt. there would remain a saving of a ton 6 cwt. out of every 10 ton 2 cwt. they now consume, besides the saving in S. T.'s wages, &c.

As the different constructions of Steam Engines now in use may be seen in your neighbourhood, I shall but observe that I am quite uninterested in this comparison, which I only give as a friend of merit and of the public, and therefore acknowledge that though Messrs. Boulton and Watt's engines consumed by him, can lay no claim to originality or invention, yet great praise is due to him in adopting, from the different fire engines on Newcomen's plan, the various particulars in which each of them, or their appendages might happen to be better constructed than the others, and in fine of belonging by their means, Newcomen's engine to so great perfection as it will admit of, without encroaching on the inventions of the gentlemen so often mentioned.

J. T. Z.

June 18th.