and female statues, in the attitude of prayer. One of the best preserved male figures is apparently clad in chain mail, with a low conical helmet; and wears either a jupon or cyclas, with a triangular or heater shaped shield, and a sword girt upon the thigh: this costume corresponds with the date to which I have assigned the erection of the steeple. There are also two canopied niches, containing good figures of saints, upon the western end.

The general effect of the spire is very imposing, its lofty altitude gaining additional elevation from its beautiful proportions and fine outline; which, together with the absence of all meretricious detail, and resulting simplicity of design, would, in my opinion, render it an

admirable model for modern imitation.

I am, Sir, your obedient servant,
J. C. Robinson.

Nottingham, February 20, 1844.

MESSRS. BOULTON & WATT, ON THE STEAM ENGINE.

Through the intervention of a Correspondent we are enabled to lay before our readers a document of some importance—being not less than a copy of the instructions furnished by Messrs. Boulton & Watt to five, we are informed, of their principal agents, and superintendents, who were deputed by them to attend, in different parts of the kingdom, to the erection of the steam engines made by the firm, under the first conditions of the patent-rights granted to them.

In the history of the invention of the steam-engine, some authors have shown much laborious research, and have deemed it right to adduce as elementary discoverers, the names of Hero, Brancas, and other individuals; and have terminated this branch of their histories, with the inventions of Sir Samuel Morland, and the Marquis of Worcester. But we, ourselves, are of opinion that, in the history of the invention of the steam-engine, there are only three important elementary periods; viz., those of Savery, Newcomen, and Watt; and all

of them took place within a century.

In taking a retrospect of the inventions of those eminently distinguished individuals, and of the times in which they respectively lived and brought them forward, we scarcely know to whom the greatest meed of praise is due—whether to Savery, for the invention of the steam-engine, and its first application to the arts of life; or to Newcomen, for the introduction of the cylinder, piston, beam, and pumpwork generally, which still remain, as essential features of the invention; or to Watt, first for effecting the condensation of the steam in a vessel separate from the cylinder; and secondly, for his admirable contrivance of the parallel motion. For it was by this last that he was enabled to work the steam on both sides of the piston, and to reduce the action of the engine to that extraordinary precision of time and power, for which it is now universally celebrated, and by which it is adapted to the performance of the most delicate and rapid processes, even to the weaving of lace.

To James Watt, notwithstanding the profundity of his intellect and great inventive powers, much additional praise is due for his sound commercial talent; so ably aided and seconded, as it is well-known to have been, by his princely-minded partner, Mr. Boulton. And, perhaps, it was owing to this last mentioned circumstance, that the names of Messrs. Boulton & Watt spread so rapidly over the surface of the civilized world, as pre-eminently skilful mechanicians.

A document emanating from such a firm, even as a matter of history, is of some importance; but when the low state of the mechanical arts at that period is considered, and a knowledge of it is placed in juxta-position with the soundness of judgment, prudence, and foresight, displayed in the document, we cannot withhold our admiration of that commercial sagacity, by which they ensured practical success. There cannot be a question, that much of that success, and its consequence, the realization of great wealth, was produced by deep investigation of, and attention to, minute details, as thus exhibited; and it ought to convey to many of those who have embarked, or are about to embark, in the same arduous and honourable profession, a memorable lesson.

In giving the document to our readers, we shall not presume to disturb the meaning of the text, or attempt to enrich it by notes and annotations. But, at the conclusion, we shall take a retrospect of the whole, and bring the practical illustration of the steam-engine down to the present time.

Table of Contents.

To dig the foundations of the engine house

The foundation of the lever wall and of the condenser cistern . . .

'he walls, or butts, which support the cylinder beams and platform .	3
To build the lever wall	8
To leave proper holes for the upper cylinder beams, and to fix them	6
Concerning the spring beams	7
The construction of the great lever, or beam, and its parts	8
'o fix the plug tree arch, the martingales, the king posts, and other arti-	
eles about the beam	9
The great chains, and martingales	10
The cap, and cross bar, of the piston rod	11
o hang the plug tree	12
The wheel and pinion windlass to lift the cylinder	13
The springs to save the shock of the great beam	15
To pay strict attention to dimension in building the house, &c.	16
The condenser cistern	17
The boiler setting	18
The gauge pipes	19
A pool for the injection water	20
The plummer blocks not to be fixed until the cylinder is fixed	21
Fo fix the outer bottom of the cylinder	22
To fix the inner bottom of the cylinder, and to make its joints .	23
To fix the cylinder to its bottoms	25
The holding down screws, and setting the cylinder upright	26
To clean the cylinder, to hang the piston, and to put a lead ring within	C/T
the cylinder, to save the bottom when the piston falls	27 28
To make the piston rise and fall perpendicularly	29
To fix the under part of the lower nozzle	
To fix the upper part of the lower nozzle, the perpendicular steam pipe,	
and upper nozzle	32
The cross pipe	33
To communicate the steam from the cross pipe to the steam case, and to	
the outer bottom	34
To fix the condenser pumps, and to make their joints	35
The valves of the condenser buckets and clacks, and their other mountings	36
The copper eduction pipe	37
The joinings, and fixing the injection and blowing pipes	38
To fasten down the condenser pumps, the pump break, to pack the	39
buckets of the condenser pumps	- Del
the injection valve	40
Guards to prevent the valves over opening	41
The guide posts, plug tree, and working gear	49
The regulators	43
The cylinder stuffing box	44
The lid or cover of the cylinder	45
To pack the piston, and of its mounting	46 47
To examine, by account it an one justice are input	48
To fix the steam gauge, and barometer	TV
pump by the pump break	49
Proper length of the piston chain, and other matters relating to it .	50
To fix guards to prevent the pump rods from dropping	51
To screw up the holding down screws from time to time	52
The uses of the three regulators	53
Their operations in working the engine	54
The use of the educator Pre	55
The use of the air and hot water pumps	90
The uses of the barometer, and steam gauge, and of the necessary	57
strength of the steam	58
To pack the piston To pack the buckets of the condenser pumps	59
To set the engine to work	60
To regulate the engine; and marks of its being in good order .	61
To examine the tightness of the joints, and to search for air and water	-
leaks	62
To examine the engine while it is working	63
To feed the boiler; and to keep the steam regular	64
To make the fire properly, and to oil the wearing parts	65
To examine the piston every week, and to give it the proper quantity of	66
tallow	
To examine the regulators frequently, and the stuffing boxes; marks of the engine being in order; heat of the hot water	67
	68
The use of the steam or boiler regulator	-
To out the engine a going by working the air nump by the brook	69
To set the engine a-going, by working the air pump by the break To make putty for the joints, and cautions about grease	69