The projecting part of one die is made to fit the hollowed part of the other die, in such a manner as to allow of a sufficient thickness of tortoise or turtle-shell to lie between them when compressed by the action of the screw of the press (which is turned by a lever projecting over the top of the boiler,) so as to form two caps or coats in length at one pressing, which may be afterwards cut into two parts, or coverings, for the short finger keys.

Having described the methods of ornamenting the finger keys of musical instruments, the patentee proceeds to describe the other parts, to which these improvements are applicable, and proposes to ornament "the name boards, the key slips, the cheek pieces, and the candle boards; all these may also be advantageously veneered with tortoise or turtle-shell, or with buhl, at discretion, by employing the above mentioned improved cements, and introducing the cloth, vellum, or parchment in either of the before mentioned methods; and further states, in conclusion, I can likewise greatly improve the art of veneering the cabinet, or wood parts, of musical instruments with common glue, by introducing a bed of linen, hempen, or cotton sheeting, in the above manner. I do not mean or intend hereby to claim as my invention any of the various means or methods herein mentioned which may already have been known or in use; but I do hereby claim the introduction of the woven fabrics, or cloths, or vellum, or parchment, in order to afford a degree of elasticity to the glued or cemented veneers; and I likewise claim the formation of the tortoise-shell and turtle-shell caps or coats for the short finger keys, in one solid piece, by means of the screw press and dies, instead of veneering them with separate pieces."

[*London Jour.*

For improvements on the Steam Engine, and in the application of steam power to navigation, and to locomotion. RICHARD TREVITHICK.
March 19, 1833.

In the "Repertory of Patent Inventions" for May last, the specification of this patent, with drawings, is given at length; a clear idea of the proposed improvements, however, may be obtained from the statement of the things claimed by the patentee, which we give in his own words.

"Now whereas I claim as my invention, firstly, the interposing between the boiler and the working cylinder of the steam engine, a long, many-curved, heated pipe, through which the steam is forced to pass with great rapidity, without being permitted to come into direct contact with water, by which arrangement the steam is made to absorb additional heat, and, at the same time, allowed to expand itself into a greater volume. Secondly, placing the working cylinder of the engine within such part of the flue or chimney as shall insure the

cylinder to be kept hotter than the steam used in it, by which means the expanding of the steam is still further promoted. Thirdly, propelling a navigable vessel by the force of the recoil, produced from water received, with a moderate degree of velocity, into a receptacle near within the stern, in the direction of the course of the vessel, and ejected with great velocity in a direction opposite to that course, the velocity of the jet being at least double the required speed of the vessel to be propelled, provided always that the same be effected in the manner heretofore described. Fourthly, applying a boiler combined with a steam expanding apparatus, as before described, instead of a boiler alone, to a locomotive engine, whereby the power of the steam is applied after the steam has undergone the expanding process; and whereby a diminution is effected in the weight of the boiler, and in the weight and consumption of water and of fuel."

Remarks by the Editor.

Although the name of Trevithick is one which has attained much just and honourable notoriety in the history of the improvements made in the steam engine, we are apprehensive that the points claimed as new, and relied upon as useful, in the patent above alluded to, will not, upon a fair examination, stand the test of investigation in either particular.

The application of heat to steam after it has been generated in the boiler, has been frequently made, both in England, and in this country. It has been sometimes done by passing flues through the steam chamber, in the upper part of the boiler, and at other times by heating the pipe by which the steam is conveyed from the boiler to the cylinder; so far, however, as we have learned the results, they have been such as to disappoint the anticipations of those who have made the essay; for although by an increase of temperature the elastic force of steam must necessarily be increased, the ratio is such that the advantage gained is but small in amount. We cannot now give the time and space required for a disquisition on this point, nor do we deem it necessary to those acquainted with the subject, as, to such, we should have but little to offer which could be considered as new. The density of steam is an important element in its mechanical effect, and although by heating it after it has been generated, what has been denominated *surcharged steam*, is produced, its density is not thereby increased, this requiring more water as well as more heat.

As regards the mode of propelling a vessel "by the force of the recoil produced from water received with a moderate degree of velocity in the direction of the course of the vessel, and ejected with great velocity in a direction opposite to that course," we had scarcely imagined that a thing which had so repeatedly been essayed, and as frequently proved an abortion, would now be proposed by any one out of his novitiate, especially since the publication of the experiments which prove that water experiences no sensible resistance in its discharge from an orifice submersed in the same fluid.