A SYSTEM OF APPARATUS

FOR THE USE OF

LECTURERS AND EXPERIMENTERS

IN

MECHANICAL PHILOSOPHY,

ESPECIALLY IN THOSE BRANCHES WHICH ARE CONNECTED WITH MECHANISM.

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WITH THREE PLATES.

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A SYSTEM OF PHILOSOPHICAL APPARATUS.

INTRODUCTORY REMARKS.

(1.) In the year 1813, the Rev. William Farish was elected to the office of Jacksonian Professor of Natural and Experimental Philosophy in the University of Cambridge, and soon after commenced a Course of Lectures on Arts and Manufactures, which he repeated yearly until his death in 1837. The plan of this Course included the exhibition of models of almost all the more important machines which were then in use in the manufactures of Britain. This led him to conceive the possibility of devising a system of mechanical apparatus consisting of the separate parts of which machines are made, so adapted to each other, that they might admit of being put together at pleasure in the form of any machine that might be required. Thus the models required for one day's Lecture could be afterwards taken to pieces and the parts built up again in a totally different manner, so as to form the models required for the next; and thus the bulk and expense of a collection of separate models, which must always oppose great obstacles to the teaching of this subject, would be removed. This happy thought he carried into practice, and was thereby enabled to furnish a most attractive and original Course of Lectures. The forms and constructions of manufacturing mechanism underwent so total a change after this Course had been arranged, that it is no disparagement to its ingenious author to say, that his apparatus, framed in accordance with the methods used in this country in 1813, became useless long before 1837, as a representation of British machinery, to say nothing of the various defects of contrivance, in his system, incidental to the first attempt to carry out an original conception.

When I had the honor to succeed to the chair in 1837, I was compelled, on these grounds, to reject the apparatus of my predecessor. But it appeared to me that his idea of a Protean mechanism was capable of being carried out in a different and more complete manner, so as to be of great practical utility, and of a much more extensive application to philosophical apparatus in general. Availing myself

of the facilities which the improved state of machine-making afforded, I endeavoured to carry my own plans into execution, and have found the result so far satisfactory during the fourteen years that I have held the Professorship, as to embolden me to lay my system before the public, in the hope that it may, in some of its parts at least, be found useful to my professorial brethren and to experimental philosophers in general. It must be understood that this system has nothing in common with that of my predecessor, excepting its universal properties. Its forms and details, and their entire system of connexion, are totally different.

In describing my apparatus, it will be observed that I have given the dimensions and scantlings of every part where required, so as to enable it to be constructed by any persons for themselves, or by the hands of their accustomed workmen. These dimensions have been settled with great care, and in many cases after much trial and alteration.

I have also given a distinct name to every part: such a nomenclature is necessary in a system of this kind, to enable directions to be given to assistants, as well as for describing arrangements in writing.

The figures in the plates are all drawn to scale, and most of them in isometrical perspective.