THE

ILLUSTRATED EXHIBITOR,

A

TRIBUTE TO THE WORLD'S INDUSTRIAL JUBILEE;

COMPRISING

SKETCHES, BY PEN AND PENCIL,

OF

THE PRINCIPAL OBJECTS

IN THE

Great Exhibition of the Industry of all Nations,

1851.

THE EARTH IS THE LORD'S, AND THE FULNESS THEREOF;
THE COMPASS OF THE WORLD AND THEY THAT DWELL THEREIN.

French Contributions to the World's Fair.

ON many previous occasions we have spoken in high terms of the contributions of our—sometime deadly, but now friendly—rival in the arts; and the fact that France bears away nearly a third of the great prizes, and that she


THE MASSACRE OF THE INNOCENTS. CARVED SHIELD.—BY M. LE PAGE-MONTIER OF PARIS.

outshines all her continental neighbours in the Crystal Palace, both in the number and variety of her products, is a sufficient excuse, if any were needed, for again introducing into our pages representations of some of her most attractive productions.

CALCULATING MACHINES.

No fewer than eight instruments for automaton calculation appear in the Crystal Palace, one only being exhibited by an Englishman, one by a Russian, one a Swiss, and five by Frenchmen. Calculation in all machines of this kind is effected by a number of worked wheels, each turning freely on its own axis; and the "value" of the operation depends on the number of teeth in each wheel. Thus, if a wheel have twelve teeth, it may be made to record pence; twenty teeth, shillings, and so on. But however perfect the mechanical operation of these machines, their power is, of course, limited to a certain

The instrument is called the ARITHMOMETER. It was invented in the year 1818 by Mr. Thomas Colmar, and has, after thirty years' study and experiments, been brought to the highest state of perfection. "By means of the Arithmometer," says the inventor, "the most complicated rules of arithmetic may be solved with accuracy and rapidity without requiring any calculation or effort of the mind on the part of the operator. To make use of the machine it is only necessary that he should be able to read figures and follow the printed instructions. Addition, subtraction, multiplication, division, and the extraction of the square root, are
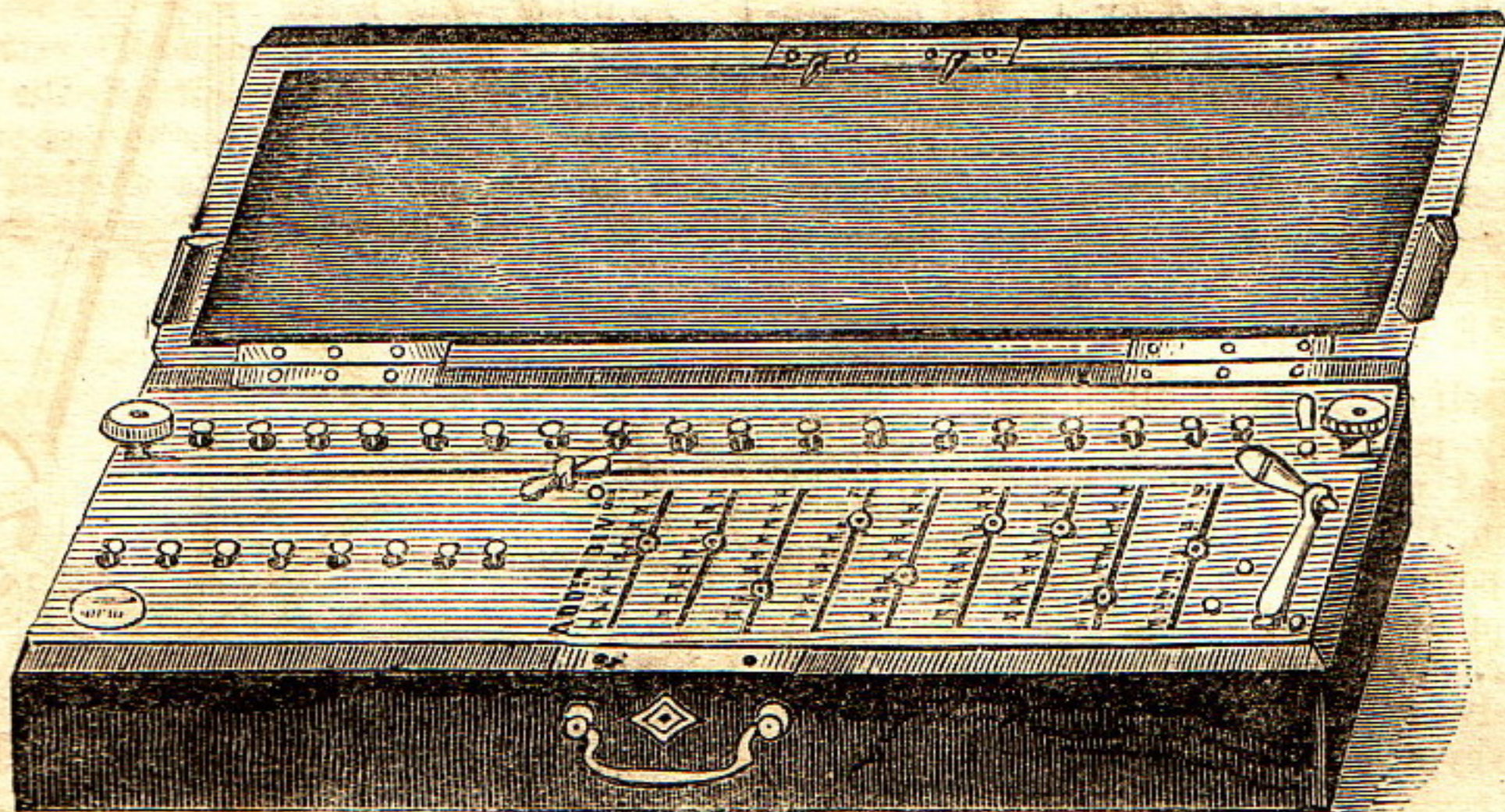

CALCULATING MACHINE. BY MR. THOMAS DE COLMAR, PARIS.

set of results, and they may be considered rather curious than highly-useful evidences of human ingenuity.

We said that only one calculating machine was exhibited on the English side. We mistake, for we find, on reference to the Catalogue, that Mr. D. Wertheimer, of Charing-cross, though the only English exhibitor, has machines adapted for Indian, American, Russian, Prussian, Brazilian, Portuguese, Neapolitan, Roman, French, Turkish, and Chinese money, besides a machine for showing the number of strokes made by a steam-engine,

all effected with equal ease and rapidity, and so simple is the working of the machine that a child may perform the most lengthened operations. All the mechanism is contained in a box 14 in. long and 6 wide when adapted to 10 figures, and 22 in. long and 7 wide, when adapted to 16 figures. To those engaged in mathematical and astronomical researches, this machine would offer many facilities; it would also be of great use to architects, engineers, staticians, bankers, money-changers, merchants, and, indeed, to all those engaged in complicated calculations."
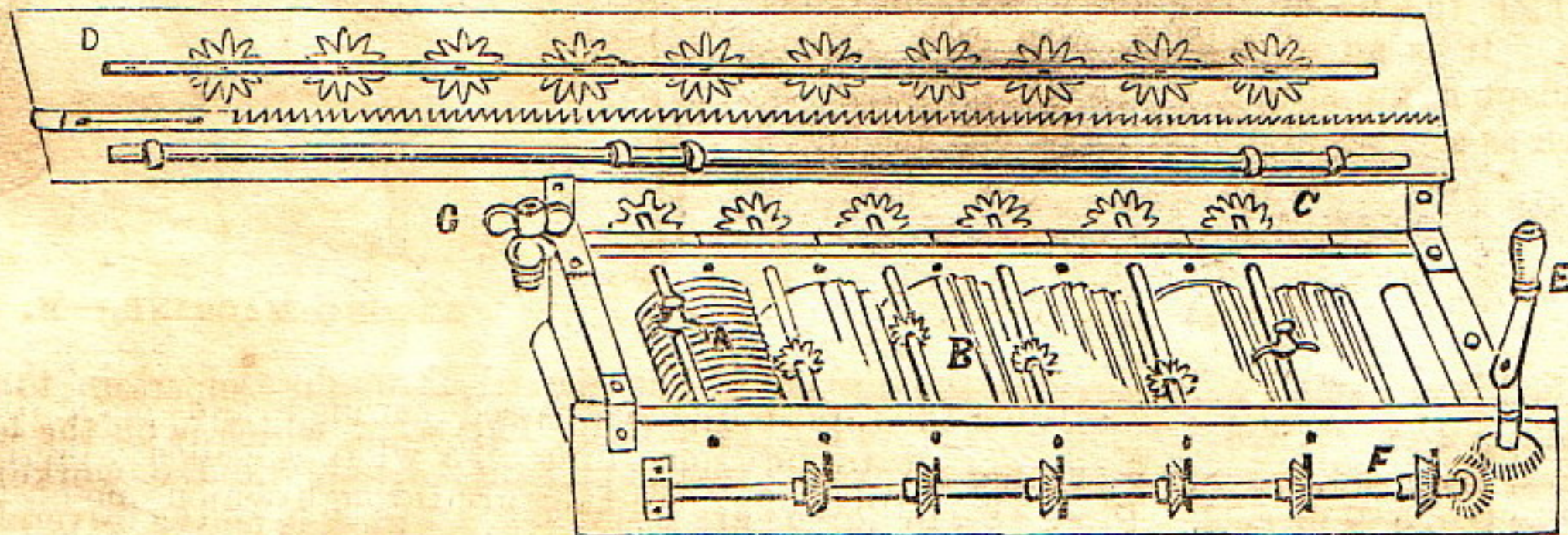
INTERIOR OF CALCULATING MACHINE.

A is the Divider and Multiplicator.
B the five bands which correspond with the dial turned.
C work the ten which produces the product on the face.
D are the ten which turn the numbers of the face.
E the handle which moves the machinery.
G is a small spring, which by shifting its position causes the machine to work either multiplication or division.

or other piece of machinery. Of these this gentleman is the patentee and manufacturer. His calculating machine is adapted for performing the four arithmetical rules—addition, subtraction, multiplication, and division—from one farthing to a million pounds. Would not some of our readers like to have occasion for such an instrument? MM. Lapointe, De la Baume, Hamann, Maurel, and Thomas De Colmar, are the French exhibitors. Of the invention of Mr. Thomas De Colmar we can speak at somewhat greater length, having the illustrations before us.

The Arithmometer is composed of as many cylinders, placed side to side, as the numbers to be added, &c., have orders of units; and upon each cylinder nine single teeth, whatever be the order of the figures to be used in the calculation, whether units, tens, &c. Of these nine teeth with which the cylinders are furnished, something like a cogged wheel, the first only goes the whole length of the cylinder; the others, in succession, become shorter and shorter, their constant difference being a ninth of the whole length of the cylinder. From this construction,

and from the circumstance that the nuts of the ten teeth, moveable along the whole length of their axes, which are parallel to one another, and to those of the cylinders, are placed in juxta-position to those where there are a number of teeth expressed by that of the nine cyphers, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, inscribed along the grooves, which open in the lid of the box containing the machine, on which the index knobs are fastened—it results that, by causing an entire revolution of all the cylinders, each moveable pull displaces as many of the teeth, or tenths of the circle, as there are units of its order in the cypher of the grooves opposite which the index has been stopped at pleasure.

Without a knowledge of the mechanism of these kinds of machines, it is almost impossible to convey an accurate idea of their modes of operation.

Both M. De Colmar and Mr. Wertheimer have been distinguished by the jury—the former by a prize medal and the latter by honourable mention.

MACHINE FOR STITCHING CLOTH, LEATHER, AND OTHER FABRICS.

This machine, which is patented by J. M. Maguin-Villefranche, Rhone, is very small in dimensions, being scarcely more than one foot in height and half a foot in width. It is worked with a treadle, at each stroke of which a needle passes up and down on a circular spring. The point of the needle passes through the fabric re-

To understand more fully the action of the machine, we give a diagram of a small portion of it. A represents the needle taken out of the machine, enlarged to enable the reader better to comprehend its form. It will be seen at B there is a small hook or slit in the needle, for the purpose of drawing the thread with, after
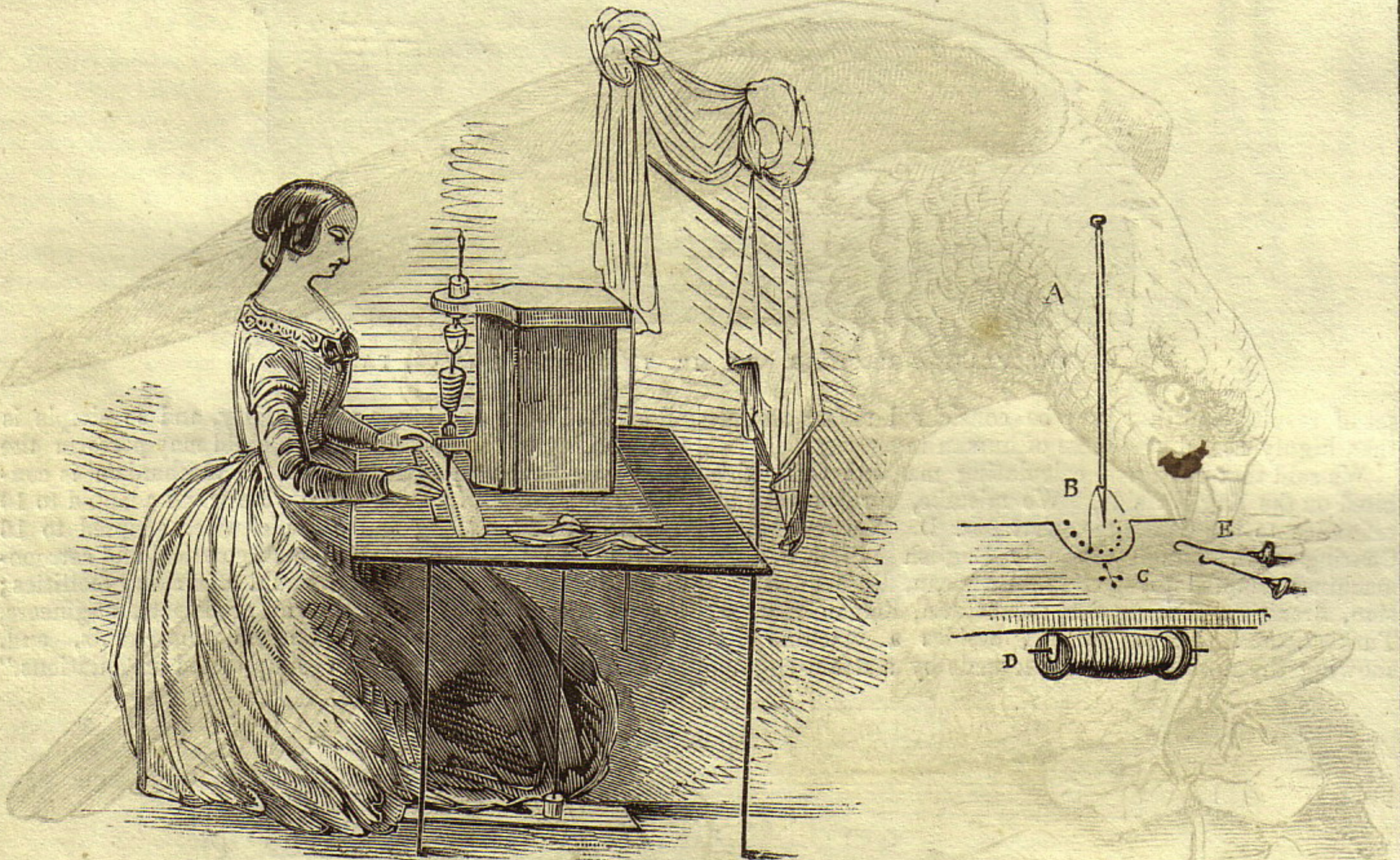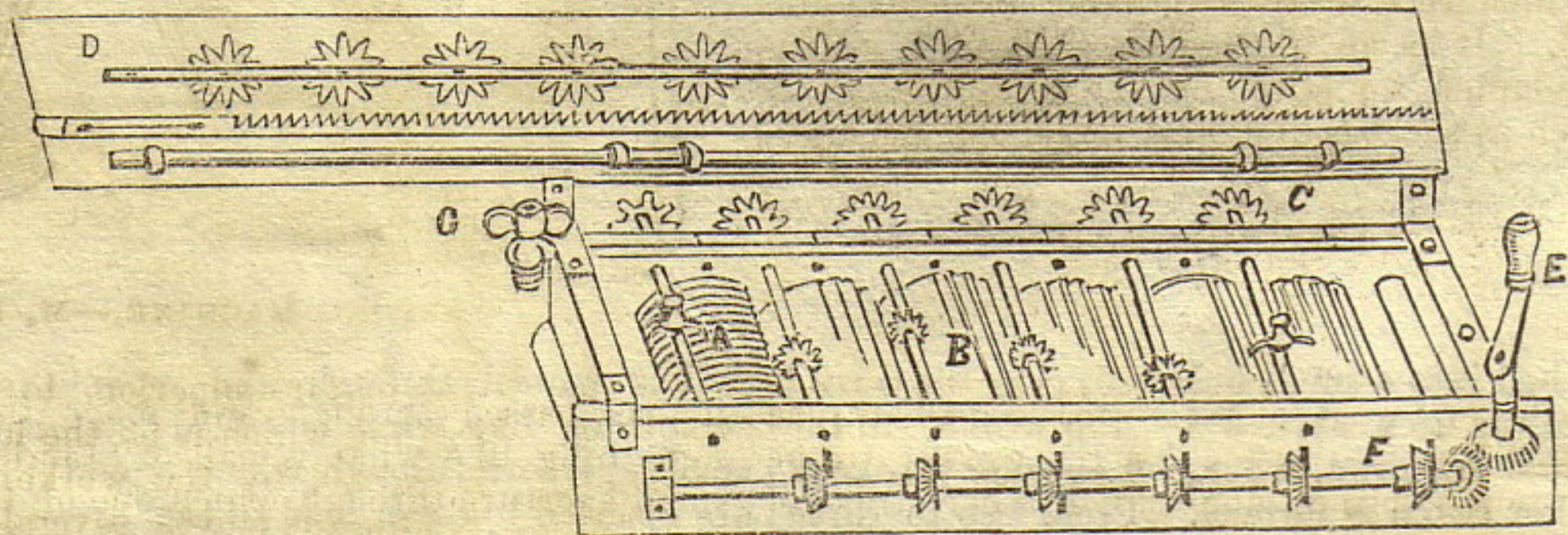

quired to be stitched into a small hole, carrying the thread with it. The cloth is then shifted by the worker to the width of the stitch required, when, by another stroke of the treadle, another stitch is formed. From two to three hundred stitches can be formed per minute, and that with a regularity and precision which is surprising. The stitches made are what our lady readers call "chain-stitch," and by shifting the fabric any pattern may be produced, or indeed may be almost drawn, by a clever worker, while progressing with the work. It is, therefore, admirably adapted for embroidery and ornamental work for waistcoats, as a figured pattern of the most elegant form and perfect finish can be produced in the space of an hour, which would be a long day's work for the most skilful seamstress to produce, and then it would not be with anything like the regularity of that worked by the machine. The patentee had a coat on which he informed us had not taken more than half a day making by this machine. Of course this would be only the seams; the buttons, button-holes, and other portions, were afterwards made by hand. The English agent, Mr. G. Robinson, Bow-lane, Cheapside, has had several of these machines at work in making coats and other garments, and we are informed that they have succeeded admirably.

it has passed through and made the stitch. This is something like what is called "tambour work." C is a small aperture through which one of the small hooks (E) are inserted to catch hold of the thread to bring it through from the reel D; so that the worker may place it on the needle preparatory to working. This done, the needle itself will return each time with the thread or silk as long as the reel lasts. The price of each machine varies from twenty to forty guineas.

We would draw attention to an article of French manufacture which has not been hitherto noticed—the "Needles for the Blind"—invented and manufactured by Mr. Tachy, of Rue Dauphine, Paris. Instead of the usual eye, they have a kind of hook, something like those in stocking-machines. They may be threaded with the greatest ease, it being only necessary to pass the cotton along the surface till it reaches the end, when it drops easily into the orifice. Now all our lady friends know the difficulty of threading a needle, especially those whose sight is not so good as it used to be. We would recommend them, therefore, to make inquiry for this admirable little instrument, which is useful not only for the blind, but for those who are near-sighted.
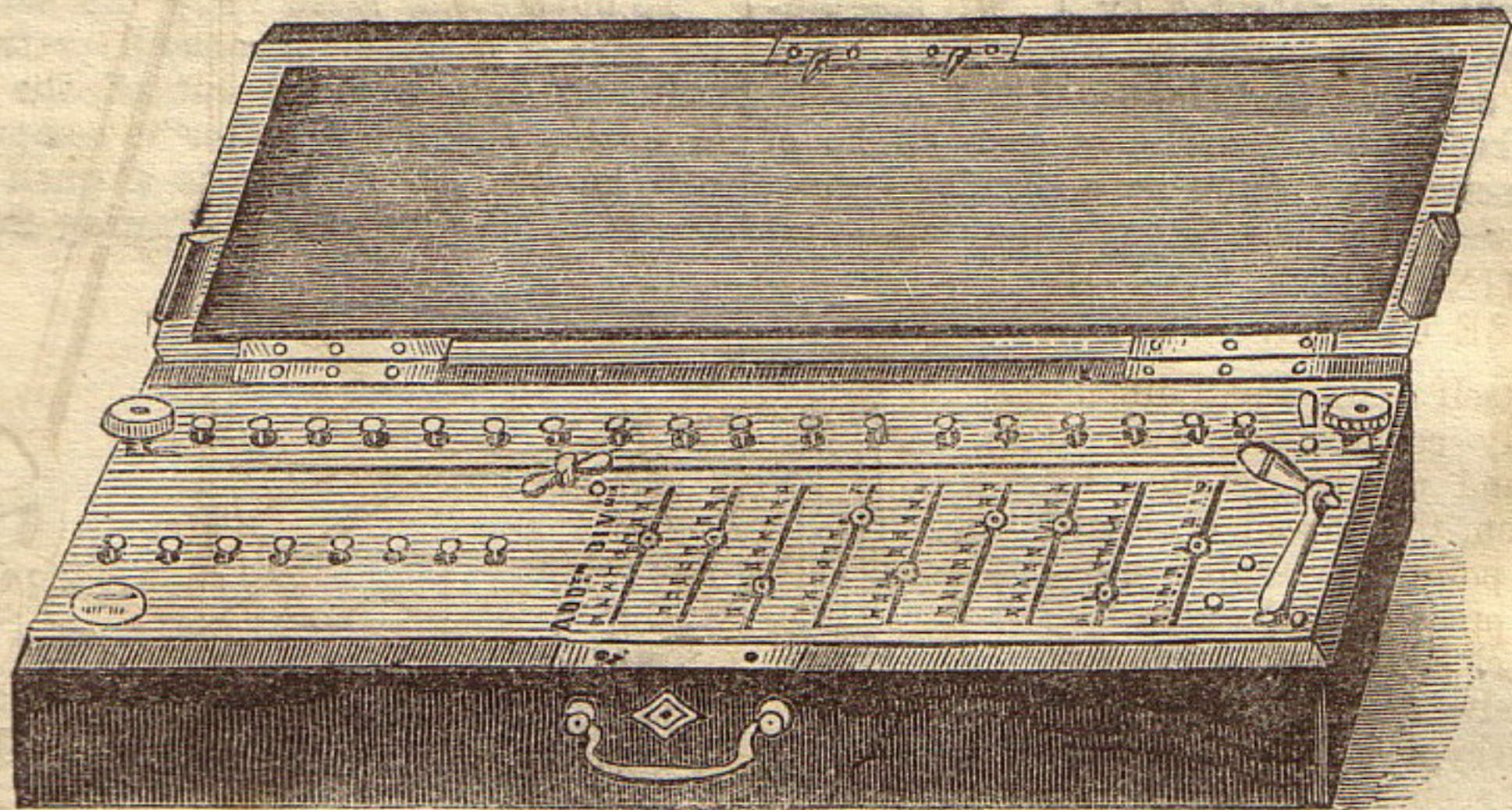
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