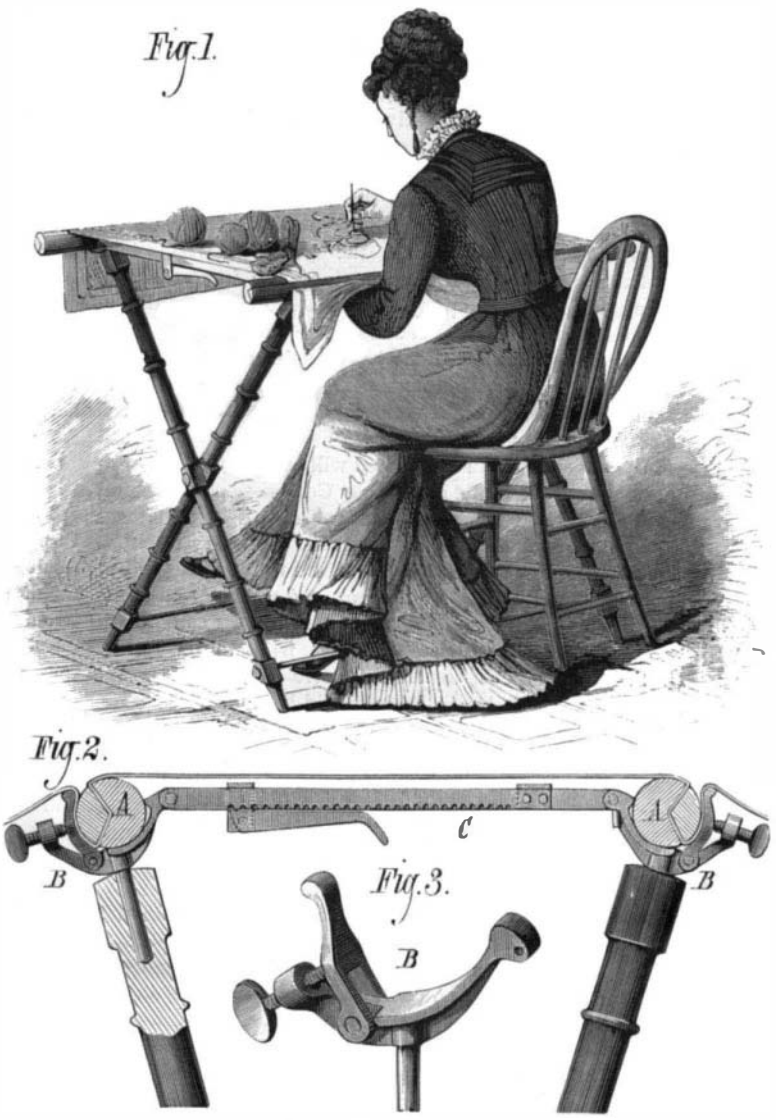
NEW EMBROIDERING FRAME.

The annexed engraving represents an embroidering frame, which affords every convenience for needlework of this class, and is also very light and compact, and capable of being folded into small compass for transportation or storage. The invention consists of two pivoted crossed legs, having at their upper ends clamps of a peculiar form holding horizontal bars, which are divided longitudinally to receive the canvas or other material upon which the work is to be done. Fig. 1 gives the general appearance of the frame, and shows the manner of using it. Fig. 2 is an end view of the upper portion of the table, showing the ends of the bars, A, and the screw clamps, B, fitted to the upper end of the leg and connected with its fellow on the opposite side by an extension rod, C, formed of two iron bars sliding together, one of them being provided with a series of notches or teeth, which are engaged by the short arm of a lever pivoted to the other. By means of this device the two bars, A, which hold the canvas are pushed apart so as to strain the material sufficiently to work upon.

The great advantage of this frame is that it will receive a fabric much larger than itself, in fact of any size, and a portion of it of suitable size to work on may be readily put under the proper tension. In addition to this the matter of shifting the fabric is rendered very simple, it being only necessary to loosen four thumb screws, and then place the fabric in any desired position.

This useful device is the invention of Mr. C. E. Bentley, Nos. 39 and 41 East 13th St., New York city.



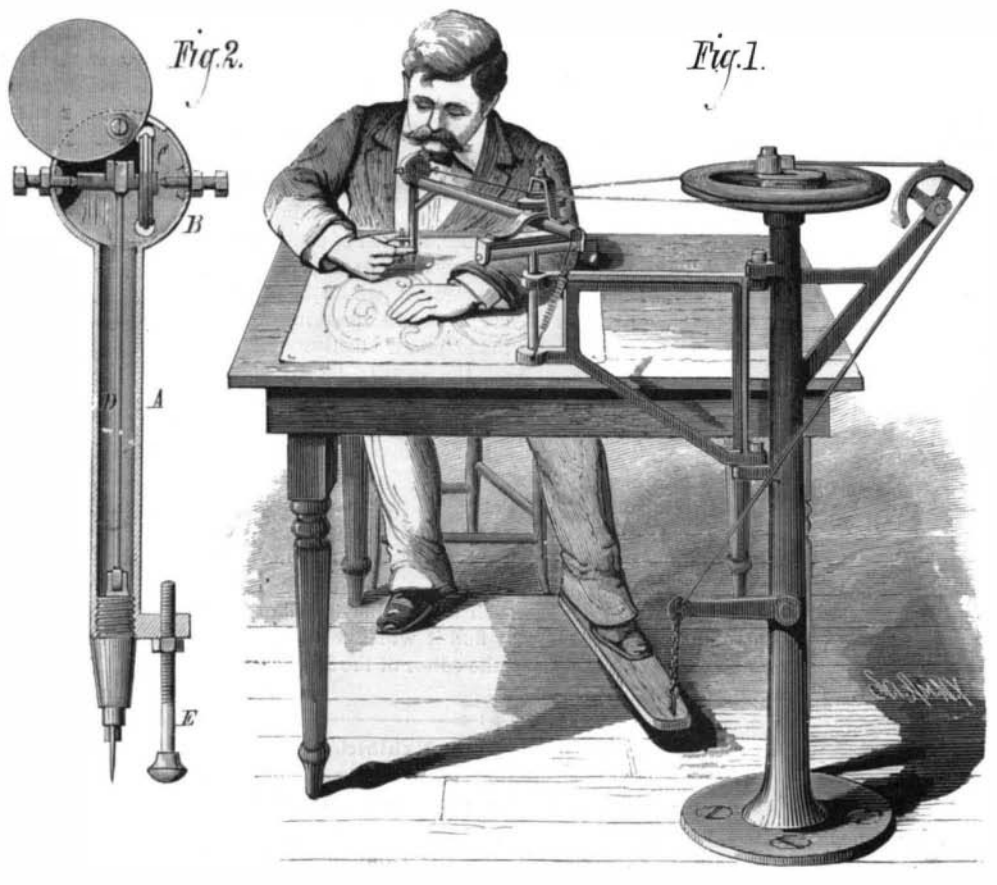
BENTLEY'S EMBROIDERING FRAME.

NEW PERFORATING MACHINE.

A simple and effective machine for perforating patterns for various purposes, such as stamping textile fabrics for embroidery, stenciling designs for fresco and fret saw work, is shown in the annexed engraving, the complete machine being shown in Fig. 1, and the perforating pen being represented in detail in the enlarged sectional view, Fig. 2.

The machine, as will be noticed, is self-contained, and the arm which carries the perforator is jointed so that it may be moved with perfect freedom in any direction over the face of the table upon which the paper to be perforated is laid, and at the same time the needle to held rigidly perpendicular, insuring a uniformity in the size and direction of the holes. This support renders it perfectly easy to control the guiding motion, as none of the weight is supported by the hand. The vertical standard supports the driving wheel, which revolves in a horizontal plane, the wheel being driven by a treadle through the medium of a straight lever and a strap attached to a bell-crank lever. The power of the driving wheel is transferred to a small countershaft above the second joint of the arm, and a belt extends from a pulley on the countershaft to the crank shaft of the perforator. The perforating needle is actuated by the crank on this shaft, so that it reciprocates vertically with great rapidity. The guide or tube containing the needle carries an adjustable rounded button, which rests upon the paper and regulates the distance the needle penetrates the paper. The stroke is sufficient to perforate 20 thicknesses. By means of this simple and ingenious mechanism the design is quickly made in small perforations, through which the impression is made upon the textile or other substances by rubbing in chalk, or by the use of stencil ink. All the parts are interchangeable so that if worn they may be easily replaced.

Further information may be obtained by addressing the inventor, Mr. C. E. Bentley, Nos. 39 and 41 East 13th st., New York city.



BENTLEY'S PERFORATING MACHINE.

A Remarkable Passage.

One of the quickest passages recorded between England and the United States has just been accomplished by the White Star Liner Britannic. This steamer, which is one of the finest vessels on the Atlantic service, sailed from Queenstown on Friday week at 4:30 P.M., and arrived at New York on the following Friday morning at 2:30 A.M., having completed the passage in six days and ten hours.

Gas Engines.

At a recent meeting of the Society of Engineers, London, a paper on the above subject was read by Mr. Charles Gandon. In his opening remarks the author pointed out that the use of gas as a motive power was still in its infancy—which was not a matter for surprise, seeing that its introduction for lighting purposes dated only from the commencement of the present century. So early as the year 1794 a patent was taken out in England for producing an inflammable vapor force by exploding the spirits of tar or turpentine in closed vessels. Between that date and the year 1860 various other inventions were patented for obtaining motive power by the explosion of various mixtures, gaseous and solid; but all the descriptions appeared to be somewhat obscure as to the nature of the explosive compounds to be used, and the means for obtaining them. Carbureted hydrogen, a constituent of coal gas, was mentioned by some; but it appeared that the idea of using coal gas, as manufactured for lighting purposes, for working engines, was first practically applied in the Lenoir gas engine, patented in 1860, and first introduced to this country at the Exhibition of 1862, where it attracted much attention. The general principle of the Lenoir engine was described, and it was pointed out that, among other defects of this engine, was the damage done to the working parts by the sudden and violent nature of the explosions, and also the necessity of the use of electricity for the explosion of the charges of gas and air with which it was worked. The latter objection had, however, now been overcome in more modern engines by the employment of gas jets for the same purpose.

Mr. Gandon then described the Otto and Langen gas engine, the chief improvement in which is, however, due to the compression before ignition of the charge of mixed gas and air, by means of which it is found that a much larger proportion of air can be employed than would form an explosive mixture at ordinary atmospheric pressures, and the force thus obtained is gradual and continuous, instead of sudden, resulting in an economy of gas and more regular working. Advantage has been taken of this discovery in several of the more recent designed gas engines. The general principles of the Otto—which are now well known—were described, and its consumption of gas stated to be at the rate of about 21 cubic feet per horse power per hour, as compared with from 40 to 70 cubic feet with former engines.

The author then pointed out that on account of the heat generated by the explosions in gas engines, it was found necessary to surround the cylinders with water, and that advantage had been taken of this in a gas engine called the Eclipse, in which the water, instead of being allowed to escape when heated, was stored in a separate chamber, where it generated steam, which was used, together with the gas, to assist in working the engine. Attention was also drawn to the Bisschop gas engine, which is meritorious chiefly on account of the small sizes in which it is made, and which range from one-half man, or one-eighth horse power, upward. This engine, although not comparatively economical in its consumption of gas, was recommended, on account of its simplicity and small size, as available for purposes to which it would otherwise be impossible to apply mechanical power.

Referring to comparisons which have been made between the cost of working steam and gas engines, the author observed that the practice had generally been to take the total cost of working in each case, including labor, and that, when this was done, the comparisons were invariably in favor of gas engines; but he pointed out that such estimates were liable to be misleading. As a gas engine requires little or no attention, the results of the comparisons depend mainly upon the amount estimated for labor for the steam engine with which the comparison is made. With a small steam engine it would in most cases be unfair to estimate the whole time of one attendant, while, as the size increased, the proportionate cost of attendance would diminish. Instances were given where estimates had been made showing steam engines to be from twice to seven times more expensive in working than gas engines; but although such estimates had doubtless been made with every care, they only served to show that it was impossible to frame such comparisons so as to be generally true. By comparing the costs of the gaseous and solid fuels it was shown that gas must necessarily, both theoretically and practically, be more expensive than solid fuel. When, however, the labor, wear and tear, and first cost were also considered, the conclusion arrived at by the author was, that for engines of small sizes, gas would always be the most economical. Even with larger engines, if the same economy could not always be maintained, circumstances would, in many cases, render gas engines the most advantageous and convenient, particularly where an engine was required for intermittent use.

Artificial Vaccine Lymph.

The success of Pasteur in cultivating the organic virus of chicken cholera in artificial solutions has suggested a like plan for cultivating vaccine organisms. It is expected that vaccine lymph so produced will be free from possible taint of septic, syphilitic or other noxious germs, which be lymph may contain when taken from living animals or men.

MOUNT BAKER, Washington Territory, has shown slight symptoms of volcanic activity for several years. An unmistakable eruption is now in progress, causing some little consternation among the scattered settlers of that region. The display of fire and smoke is said to be magnificent as seen from Upper Sumas, about fifty miles distant.