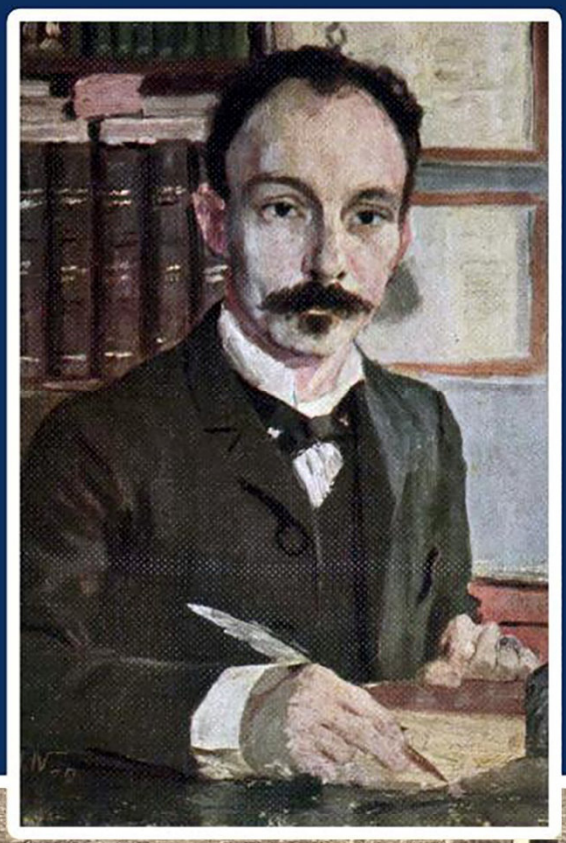
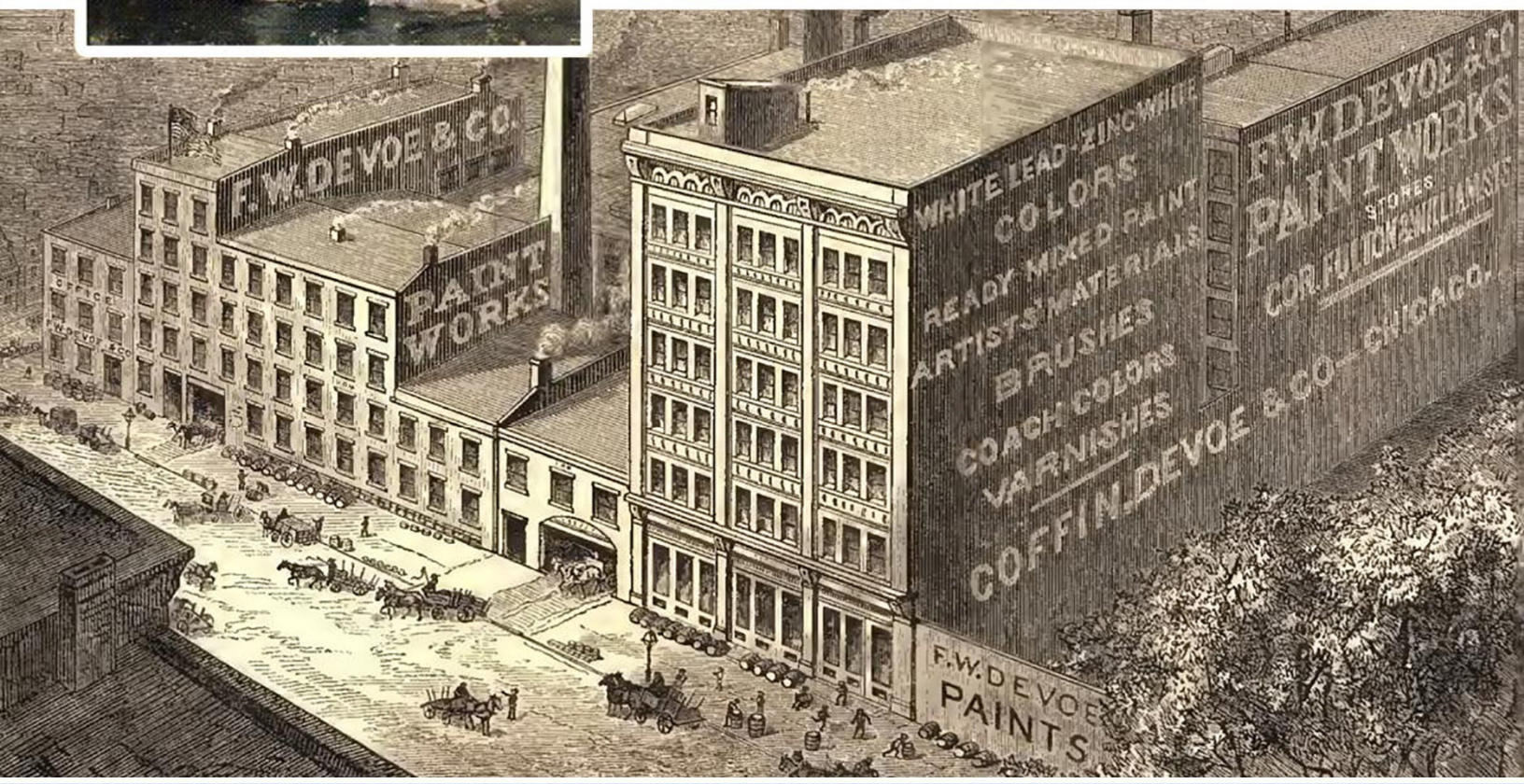


Fuentes y enfoques del periodismo de José Martí en el mensuario *La América*



Alejandro Herrera Moreno

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El horógrafo

En *La América* de marzo de 1883 publica José Martí una noticia breve que titula "El horógrafo. Invento reciente".[1] Se trata de una invención sencilla del profesor A. M. Matthey de la Escuela de relojería de Besançon en Francia, para que los niños aprendan el reloj. Este invento se había publicado un mes antes en el suplemento número 373 del *Scientific American* del 24 de febrero de 1883, bajo el título "Matthey's horograph for schools"[2], traducido de la revista francesa de ciencias *La Nature*[3], de donde tomamos la imagen que se muestra en esta página. La noticia martiana tiene la siguiente introducción:

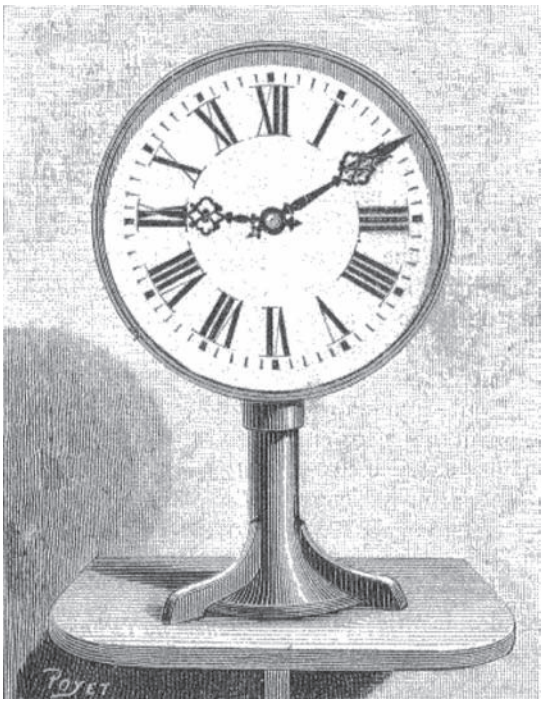
> A veces, no se pone atención en cosas importantes, porque parecen demasiado sencillas. Sin embargo, importa mucho, —tanto como tender rieles cuando se trata de hacer andar ferrocarriles, —enseñar a los niños hechos fundamentales, que les ahorran trabajo inútil, y les preparan a conocimientos mayores.[4]

"...importa mucho, —tanto como tender rieles cuando se trata de hacer andar ferrocarriles, —enseñar a los niños hechos fundamentales, que les ahorran trabajo inútil, y les preparan a conocimientos mayores [...] Se acaba de inventar un instrumento colocado sobre un pie simple, que se conoce con el nombre de «Horógrafo de Mathey», para enseñar a los niños el movimiento del reloj..."

Tras esta reflexión sobre la educación infantil, Martí entra en el tema del invento que va a describir y toma de la noticia original la idea acerca de las dificultades que pueden tener para el aprendizaje del reloj niños y niñas considerados inteligentes en asignaturas difíciles (como la aritmética) o con habilidades satisfactorias para la música. El texto de la fuente dice: "Very frequently, very intelligent children, who understand the four rules of arithmetic, as well as music satisfactorily enough, are incapable of indicating the hour marked by the face of a watch or clock".[5]

Solo que Martí, enérgico opositor de la lección improductiva o la enseñanza memorística, tan común en la educación tradicional de la época, más que traducir libremente, interpreta estas ideas exagerando el contexto, con una clara intención crítica y no sin cierto sentido del humor, cuando dice: "Es innumerable la cantidad de niños que dicen de coro trozos de Cicerón, o tocan en el piano melodías de *La Traviata*, sin saber todavía conocer la hora en el reloj".[6]

Lo que sigue en la noticia martiana es una síntesis de algunos datos de este original invento: nombre, características, propósito (la enseñanza del reloj, la ope-



ración de división y los números romanos), funcionamiento, aplicaciones y utilidad para los docentes; construida a partir de una traducción libre, inclinada a la síntesis, de ciertos fragmentos de la versión original, como se muestra en el cuadro comparativo siguiente.

José Martí	***Scientific American***
"Se acaba de inventar un instrumento colocado sobre un pie simple, que se conoce con el nombre de "Horógrafo de Mathey", para enseñar a los niños el movimiento del reloj, a la vez que la esencia de la división en Aritmética, y el uso de los números romanos. El reloj es un disco sencillo, cuyo minutero y horario giran hacia atrás o adelante por medio de un tornillo. Son numerosísimas, las aplicaciones a que se presta el horógrafo. Con él pueden los profesores llenar a un tiempo muchos objetos y entretener en amena y muy provechosa conversación a sus alumnos". [p. 20]	"Now, such an apparatus, fulfilling the desired end, has just been devised by Professor A. Matthey…" "This instrument, which its inventor designates a school horograph, consists of a clock dial held vertically on a firm support, and carrying an hour and minute hand and a dial train". "By means of this arrangement it becomes easy to teach children the [...] division into 12 equal parts or hours, and into 60 equal parts or minutes, while at the same time instructing them as to the value of the Roman figures..." "The apparatus is very strongly made and is easily transportable, thus allowing of its being used to teach the time in the different classes of the same scholastic group". [p. 5949]

Finalmente, Martí comenta que: "En Francia, todas las escuelas se han hecho ya del horógrafo",[7] pues la noticia original indica que el aparato había sido diseñado en la "École d'Horlogerie of Besançon", y termina reiterando su mensaje educativo: "En los Estados Unidos, el invento está siendo prontamente aceptado. La grandeza de los pueblos no depende acaso sino de aceptar a tiempo, y sin demora, todo lo útil: —y en educar racionalmente a los niños".[8]

En conclusión, a partir de una noticia en inglés de cuatrocientas noventa y seis palabras que describe un sencillo aparato para enseñar el uso del reloj en las escuelas, Martí elabora una noticia de solo doscientas veintisiete palabras, con el mismo objetivo. En la noticia martiana el 69% es traducción libre o simplemente interpretación, a partir del material original para crear una versión enfocada y directa en el tema, donde ofrece la información esencial para entender cómo es, cómo funciona y qué utilidad trae a la educación este simple y curioso invento. El 31% del texto restante, corresponde a palabras de introducción y cierre, enfocadas en el valor del aprendizaje productivo y la importancia del aprovechamiento de las inventivas útiles y la correcta educación de los niños para el crecimiento de los pueblos. La noticia se enmarca en uno de los temas de mayor importancia en *La América*: la educación; con varios textos periodísticos en el bloque de ciencia, técnica y tecnología[9] que tratan sobre escuelas, modelos de enseñanza y herramientas para la educación, con especial énfasis en la necesidad de la educación científica.

Notas

1. José Martí: "El horógrafo. Invento reciente", en *La América*, Nueva York, marzo de 1883, OCEC, t. 18, p. 20.
2. "Matthey's horograph for schools", *Scientific American*, Supplement 373, febrero 24 de 1883, p. 5949.
3. "Le horographe scolaire", *La Nature,* Revue des sciences et de leurs applications aux arts et à l'industrie, onzième année, 1883, n. 496 à 521, pp. 31-32. Disponible en: http://cnum.cnam.fr/PDF/cnum_4KY28.20.pdf
4. JM: "El horógrafo", ob. cit., p. 20.
5. "Matthey's horograph for schools", ob. cit., p. 5949.
6. JM: "El horógrafo", ob. cit., p. 20.
7. Ídem.
8. Ídem.
9. Como explicaremos más adelante, en el proyecto periodístico *La América* se distinguen cuatro bloques informativos básicos: 1) ciencia, técnica y tecnologías, 2) Estados Unidos, 3) nuestra América y 4) editoriales.

in the usual manner and connected with the system of existing railways. The viaduct would present no obstruction to the sand-travel, and therefore cause no diminution of the depth of water. At the outer end a breakwater was to be constructed of large concrete blocks, founded on a substratum of rubble, carried down to a sufficient depth to prevent disturbance by wave-action. The cost of the work would be about £950,000.

The works for an improved supply of water for Liverpool were making rapid progress. The water was to be impounded from the watershed of the river Vyrnwy, in North Wales, a distance of 67½ miles from the Prescot reservoirs, to which it was to be brought partly by aqueduct and partly in tunnels and pipes. The area of the watershed was 17,513 acres. The upper waters of the Vyrnwy were to be impounded in the valley of the river by a dam, which would collect the waters of the river into a reservoir having an area of 1,115 acres. Manchester recently obtained powers for an additional supply of water from Thirlmere. All were agreed that a supply of pure water was one of the most important means of maintaining the health of large towns, and it had also come to be admitted that it had an important influence on their moral condition. It would be well, therefore, if London would seek to emulate the northern cities in supplying its population with pure water.

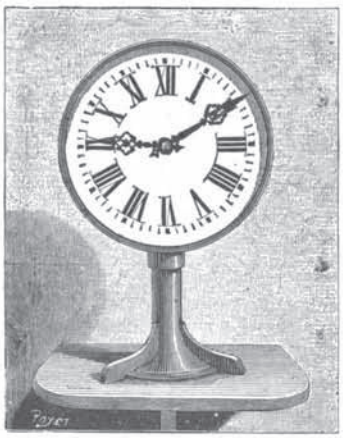
The old Eddystone Lighthouse, completed in 1759, had always been an object of peculiar interest to the nation. It was with a feeling akin to personal regret that the public learned for the first time in 1877 that Smeaton's work was doomed; but it was a source of satisfaction and consolation that nothing in the design or construction of the tower itself conduced to the necessity for replacing it; but the rock upon which it was reared had not been so enduring. The new tower was 130 feet high above high water, or 58 feet higher than the old tower, and nearly five times the quantity of stone was used in its construction. Smeaton's tower contained only four rooms; that of Sir James Douglas nine, of larger and loftier proportions. It had cost £78,000, and had been completed in three and a half years. Since the application of electric light at the South Foreland Lighthouse, in December, 1858, considerable progress had been made with all the luminaries applied to lighthouses. At the above date, the standard intensity of the first-order oil-light was 230 candle-units, and the intensity of the most powerful electric light was about 670 candle-units. Recently, at the Eddystone Lighthouse, two oil-lamps, each of 720 candle-units, had been adopted. This intensity would shortly be considerably exceeded. With electric light, a focal intensity of about 10,000 candle-units was applied at the Lizard, and arrangements were being made by the Trinity House for practically testing the merits of an electric light of 60,000 candle-units intensity. With coal-gas light great progress had been made since 1865, by Mr. John Wigham, of Dublin. In the latest development of his system four burners were employed, each of 1,250 candle-units intensity.

Mr. Brunlees then briefly referred to the want of railway communication in many productive countries. The immense population of China would derive great advantages from the construction of railways. It had been said that the objection of the Chinese proceeded chiefly from the fear of introducing foreigners in any considerable number. Chinese statesmen, even those most liberal and enlightened, at one time believed that railways were not adapted to the circumstances of China. They had recently formed a different opinion, An official memorial had been drawn up by one important government officer, and favorably reported on to the government by another high official, suggesting and recommending the construction of four important trunk lines, and no doubt if these were once executed many more would follow. In India somewhat more than 900 miles of railway were in course of construction, including three bridges of more than ordinary importance. When the works now in progress were completed, India would have nearly 12,000 miles of railway open for traffic. In New Zealand the length of railway in various stages of progress during the year ended March 31st last was 234 miles, and 1,333 miles were then open for traffic, and an additional expenditure of £1,650,000 had been ordered. In Queensland, only a few miles appeared to be under construction; but an extensive system of railways was under the consideration of the government. In South Australia considerable progress had been made in railway building, and this might also be said of Victoria and New South Wales, where there were 342 miles under construction. He regretted that the Australian colonies had not adopted the same gauge for their lines. With the disadvantages which had arisen in England, in India, and in America from a break of gauge, and from the great advantages which Western and Central Europe had derived from a uniform gauge, it might have been thought prudent on the part of the Australian colonies to have accepted the experience of older communities. In Canada, 2,910 miles of railway were under construction; and in the United States some 11,000 miles had been constructed during the last year. In the United States and in Canada the tendency was toward a uniformity of gauge.

The undue neglect of the inland navigation of this country was a subject which deserved the attention of the engineer. For coarse goods, a slower conveyance than the goods-train might be endured in consideration of its greater cheapness. But to be more extensively useful it must be something between the present speed of the canal-boat and the goods-train, with the punctuality of the latter. Mr. Brunlees then drew attention to the fact that the trained engineer was a comparatively modern creation. Until little more than a hundred years ago Great Britain contained hardly a canal or a passable high road; and two centuries ago it was necessary to send to Holland for an engineer to build a sea-wall. A Rivers Conservancy and Flood Prevention Act was greatly needed. Private interests of the most insignificant character were suffered to interfere with or prevent the execution of plans which would be of manifest advantage to large populations. To carry out any local or general public improvement, private persons must be organized into public bodies, and appeal must be made to the cumbrous and costly machinery of parliamentary legislation in every individual case. There was signs that this ancient system, suitable enough for the rate of progress of public works half a century ago, but unsuited to the rapid march of improvement in our time, would before long be modified and improved. During recent times of depression, fear had been expressed that the profession was too full, that the work of engineers had been completed. But these fears were vain. So long as capital accumulated in this country, it must be expended in some productive way at home or abroad. Judiciously planned public works were always productive, and the men who found the means would appoint the agents for carrying out the works. Not only were public works, including many new or larger harbors and docks, required at home; not only were new countries of vast extent and enormous resources being gradually laid open to the operations of the engineer, but a greater diversity of employment was offered to him. It was impossible to say to what uses the comparatively new power of electricity might be put, but it must play an important part in the social industrial economy of the age.

MATTHEY'S HOROGRAPH FOR SCHOOLS.

ONE thing worthy of remark is that a knowledge of the time of day by reading the position of the hands on the dial of a clock is acquired but slowly by most children. Whether this is due to the unequal motion of the two hands, or to the duodecimal division that they pass over, or to the Roman figures indicating such divisions, it would be impossible to say. Very frequently, very intelligent children, who understand the four rules of arithmetic, as well as music satisfactorily enough, are incapable of indicating the hour marked by the face of a watch or clock.



MATTHEY'S SCHOOL HOROGRAPH.

The sole cause of such an ignorance as this is due to the fact that an idea of the time is nowhere *taught*, although within so easy reach of children. This constitutes a regrettable deficiency in the teaching of our primary schools, and children are therefore forced to learn solitarily how to tell the time—some of them sooner, others later. And yet such a knowledge as this is just as useful as, if not more than, many other kinds, since it initiates children into an idea of the division of time and the manner in which it should be employed.

But it would be easy to supply the above mentioned deficiency if there were put into the hands of teachers some instrument of demonstration such as has been wanting up to the present time. Now, such an apparatus, fulfilling the desired end, has just been devised by Professor A. Matthey, of the Ecole d'Horlogerie of Besançon. This instrument, which its inventor designates a school horograph, consists of a clock dial held vertically on a firm support, and carrying an hour and minute hand, and a dial train. With this latter there is connected a winch by means of which the hands may be turned in one direction or the other.

By means of this arrangement it becomes easy to teach children the two characteristic divisions of a clock face, that is, its division into 12 equal parts or *hours*, and into 60 equal parts or *minutes*, while at the same time instructing them as to the value of the Roman figures used for numbering the hours. Afterward, on turning the hour hand in the desired direction by means of the winch, the teacher will direct attention to the fact that the two hands revolve in the same direction, but with different rates of speed; that while the longer hand is making an entire circuit of the dial the shorter one moves only a *twelfth* of a revolution; and that, consequently, the latter can only make an entire revolution of the dial after the longer one has made such revolution twelve times This being understood, children will very quickly comprehend that we designate as an *hour* the time taken by the longer hand to make an entire revolution of the dial, and that this time is subdivided into sixty equal parts or *minutes*. If, on another hand, they are taught that the day consists of twenty-four hours, they will without difficulty grasp the idea that during such interval of time the shorter hand makes the revolution of the dial twice, and the longer one twenty-four times. Finally, the demonstration will be completed by placing the hands in any position whatever, and the teacher will assure himself by individual interrogatories that all the children in the class are able to indicate the entire hours by the position of the shorter hand, and the complementary minutes from the position of the longer one.

Such is, in brief, the mode of making use of Prof. Matthey's school horograph, the dimensions of which are calculated according to the size of the classes, and so that each child may clearly distinguish the divisions of the dial and the relative position of the hands upon such divisions. The apparatus is very strongly made, and is easily transportable, thus allowing of its being used to teach the time in the different classes of the same scholastic group.—*La Nature.*

NEW PROCESS OF GREENING CANNED VEGETABLES.

To give canned peas, beans, etc., a bright-green color, the French usually employ sulphate of copper in the proportion of 40 to 50 grammes to 60 liters of water for 40 liters of peas. This is about 3 grammes of copper per liter of peas. A great portion of this copper is afterward got rid of by washing; yet, nevertheless, some of the poisonous salt is necessarily absorbed by the vegetables.

Recently, Messrs. Poisoz, Biardot & Co., of Paris, have devised a new process of greening, which is very simple in its application, and claimed to be absolutely harmless, and the results of which have proved very satisfactory. It is as follows:

1. *For Peas.*—Into a vessel containing, say, 80 liters of boiling water there are put 40 liters of peas, which are blanched in the usual way. After this the peas are washed with cold water, drained, and put into the boxes in which they are to be preserved, and the latter are filled with a liquid prepared as follows:

A solution is first made of white sugar and chloride of sodium in ordinary water, to which is added 20 per cent. of milk of lime. After stirring, a liter of a solution with the following composition is added: 300 to 720 grammes of solution of caustic soda of 40° Baume, and 100 to 180 grammes of crystallized sulphite of soda dissolved in 500 grammes of water.

The tin boxes should be filled as full as possible, and afterward submitted to ebullition in an ordinary digester. This operation should last from ten to fifteen minutes, according to the size of the peas, the temperature employed being from 110° to 112° C.

2. *For Beans.*—After blanching as above, the boxes are filled with the following liquid:

Clear lime water, 100 liters;
Chloride of sodium, 1 to 3 kilogrammes;
Crystallized sulphite of soda, a few grammes.

The ebullition should last from six to eight minutes at a temperature of 106° to 110° C.

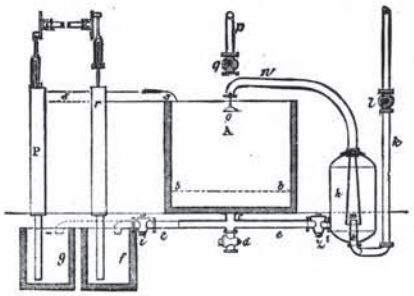
As may be seen, the substances employed in this process are absolutely innocuous, especially employed in so small a quantity.—*Annales Industrielles.*

MORRIS' BLEACHING APPARATUS.

THE apparatus shown in the accompanying cut, the invention of Mr. J. Morris, of Manchester (German patent, No. 18,685), permits of effecting, in one and the same vat, the different operations embraced in the bleaching of fabrics. The open vat, A, is provided with a perforated bottom, *b*, beneath which is disposed a pipe, *c*, having two branches, *e*, and a blow off cock, *d*. One of the branches, *e*, of the pipe leads to the reservoir, *f*, containing the bleaching liquid, and to the acid reservoir, *g*, and the other is connected with the closed vessel, *h*, which contains a steam jet apparatus, *m*.

When it is desired to use the apparatus, all the cocks are closed, and the material to be bleached is put into the vat, A. Then the cock, *q*, of the water pipe is opened; the vat is filled with water; the cock is closed; and the necessary quantity of bucking or steeping material is added. After this, the steam cock, *l*, and the cock, *z*, are opened, so that the steeping liquid, which then fills the vessel, *h*, is carried along with the steam entering through the tube, *k*, into the cone, *m*, and is thrown by the tube, *n*, and the rose, *o*, over the material to be bleached lying in the vat. When this operation is finished, the cocks, *l* and *z*, are closed and *d* is opened, in order to allow the steeping liquid to flow off.

Then the water cock, *q*, is opened in order to rinse the fabric, and afterward the cocks, *q* and *d*, are closed, and the cock, *i*, of the branch, *e*, leading to the reservoir, *f*, is opened. After this, the pump, *r*, is set in action to spread over the fabric, through the pipe, *s*, a continuous current of bleaching liquor, which finally returns to the reservoir, *f*.



MORRIS' BLEACHING APPARATUS.

When this operation has lasted sufficiently long, all the solution filling the vat is caused to flow into the reservoir, *f*, through the cock, *i*, which latter is then closed. Then the cocks, *d* and *q*, are closed; the fabric is rinsed with water; all the cocks are closed, with the exception of the one connecting the branch, *e*, with the acid reservoir, *g*; and the pump is made to act so as to spread acid over the fabric. When the acid has been in contact with the latter for a sufficient length of time, it is allowed to flow into the reservoir, *g*, the cock, *i*, is closed, and the fabric is rinsed with water.

Afterward, the blow-off cock, *d*, is closed, and a sufficient quantity of water, to which soap has been added, is let into the vat through the cock, *q*. Then the solution of soap is introduced into the vessel, *h*, by opening the cocks, *l* and *z*, and afterward forced upward into the vat by means of a jet of steam. When this soap solution has acted sufficiently long, the cocks, *l* and *z*, are closed, and *d* is opened in order to