

Machinery and Appliances.

IMPROVED VERTICAL COTTON OPENER.

MESSES. JOHN HETHERINGTON AND SONS,
VULCAN WORKS, MANCHESTER.

In the issue of *The Textile Mercury* of December 28th last, we gave an extract from the diary of John Henry Manners, fifth Duke of Rutland, describing the willowing of cotton as witnessed by him on a visit to a Manchester cotton mill in 1797, when "doing" the then fashionable tour of his own country. The process consisted of beating the cotton loose by willow wands or canes, the beater holding a cane in each hand. The progress made in cotton opening since then has been very great. In the same year that his lordship visited Lancashire, Mr. Snodgrass, of

It is a long cry since Snodgrass' invention to the present time, and in the interval many improvements have been effected and superseded by others, progress continuing fairly steady all the time. Experience has at last gathered favourable conclusions mainly round two or three types only, and one of these is the vertical one so generally known by the name of the inventor as "the Crighton." The original patent has, of course, long ago expired, and some makers of cotton machinery now make it with improvements of their own.

In this type of machine as constructed by Messrs. John Hetherington and Sons, the cotton is fed down an open pipe, or by their creeper-feed arrangement, which is recommended as preferable, to the bottom of the vertical beater, the figure of which is an inverted cone. The arms of the beater strike the cotton against the grid by which it is enclosed. The heavier dirt, dust, and leaf being thus knocked loose can freely fall away,

Preferably the feeding creeper is supplied with a porcupine, which loosens the matted cotton very materially, and increases the cleansing and opening power of the vertical beater. This consists of a pair of coarse fluted rollers, behind which there is a revolving drum, furnished with coarse, round-faced teeth. Below this drum is a small casing forming about a quarter segment of a circle. This permits the heavier impurities to fall through, while the cotton, much loosened from its matted condition, passes on to the vertical beater.

One of the drawbacks to the vertical beater was the liability of the footsteps to heat through sand, grit, and dirt getting in, and frequent fires, as well as less serious inconveniences, were the result. Messrs. Hetherington and Sons have obviated these by the invention of a protector which protects the steps from all impurities. It consists of a bell cone fitted on the bottom shaft, the lower edge of which runs in water contained in a dish cast on the fixing,

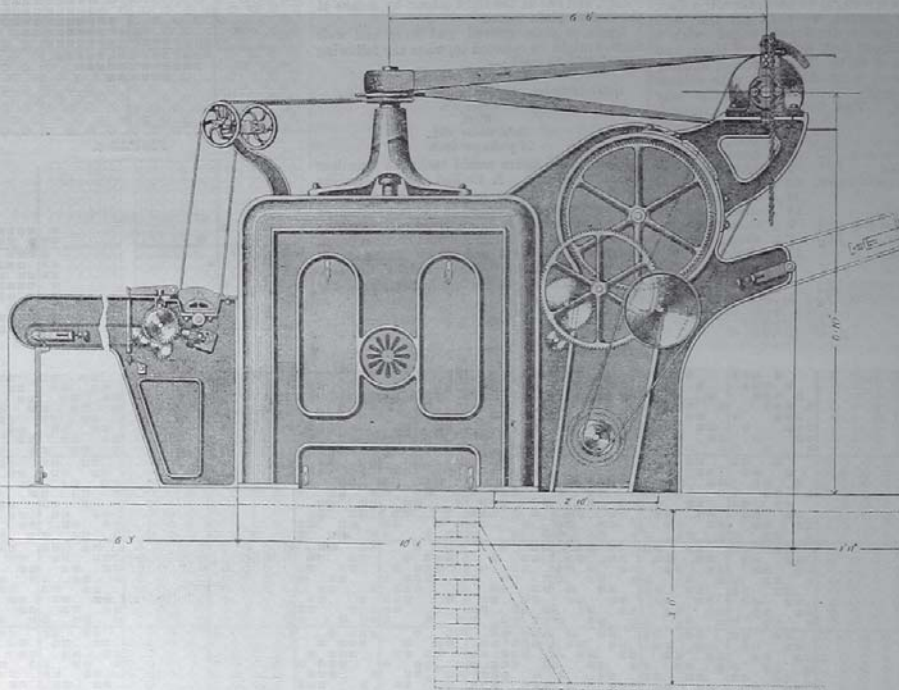


FIG. 1.—SINGLE SELF-CONTAINED VERTICAL COTTON OPENER.—MESSRS. JOHN HETHERINGTON AND SONS, MANCHESTER.

Johnston, near Paisley, invented and introduced the scutching or blowing machine, the first mechanical appliance for opening cotton. This machine was considered very efficient, opening the cotton well, and requiring only about one-twentieth of labour usually employed. To shew how slowly improvements spread in those days, it may be mentioned that the knowledge of this machine did not reach Manchester for ten years, and it was not introduced until the years 1808 or 1809. Improvements in machinery would, however, fare no better to-day if modern means were not availed of for making their merits known and thus securing their adoption. Indeed, it is even yet the case where inventors rely solely upon the merits of the machine to commend it to adoption.

whilst the loosened fibres of cotton, sustained by the draught of the fan, are gradually driven upwards by the increasing radii of the arms of the fan. Attaining the top it is drawn through the discharge pipe upon the cage, whence it is delivered to the discharging creeper, and is carried out of the machine in an open, fleecy state, thoroughly cleansed, and looking all the brighter for the process through which it has passed.

An improved grid has just been introduced by the maker which has been found to give highly satisfactory results. It is illustrated herewith, and, as will be seen, consists of a number of series of horizontal grooves, each terminating in a small perforation through which the impurities readily pass.

thus making a complete water joint, so that no dust can possibly get through and ascend to the steps. It also greatly conduces to the prevention of heating of the shaft.

Another improvement the makers have introduced is a patent double fan, which is arranged with a fan spider on each end of the shaft. This brings the weight close up to the bearing on each side, instead of its hanging in the middle of the shaft. Steadier running is secured by this arrangement, which is an important gain when the high speed of the fan shaft is taken into consideration. It also affords means of providing a stronger draught when desirable.

Messrs. Hetherington and Sons make these openers single and double, and combined with

scutcher, all self-contained or otherwise, according to requirement. The one illustrated herewith is the single, self-contained opener, the elevation and plan being shown in figs. 1 and 2, and a section of the grid in fig. 3. It is named "self-contained" because it is supplied with a counter shaft, fixed on suitable arms attached to the framing, from which it is driven. The strap plate and forks are so arranged that they can be placed at any angle to suit the requirement of the driving shaft. This obviates the necessity of fitting up extra shafting, which is often a great inconvenience.

The speeds at which the single opener is constructed to work are:—Counter shaft, 500 revolutions per minute; beater, 1,000 ditto; fan, 950 ditto. At this speed the production obtained is 40,000 lb. per week of 60 hours.

The extensive experience of the makers leads them to recommend to spinners using Surat cottons, a double machine, in connection with which they have introduced a patented arrangement of pipe, and by means of a trap door,

admitted by engineers that this sending of condensed steam into the boiler effects considerable economy in fuel, and by the absence of incrustation the life of the boiler is considerably prolonged. It is found by actual test of one of the motors in driving the electric light in the offices of Messrs. W. H. Bailey and Co., that a No. 2 motor working from 3 p.m. to 9 p.m., and driving 40 sixteen-candle power lamps, fed with coke, requires starting with 50 lb. of fuel. This is supplemented at regular intervals by 25 lb., 20 lb., 20 lb., and 20 lb., or a total of 135 lb. With the cost of fuel at 5d. per 112 lb., this gives an expenditure of about 1d. per hour. The light itself is of almost perfect steadiness.

Nine indiarubber workers from Manchester, England, being disappointed at the wages received at New York, and being destitute, have applied to the Customs authorities to be sent back to England.

TRADE MARKS AND PATENT LAWS IN VICTORIA.—Two Acts have recently been passed in the Colony of Victoria, one relating to Fraudulent Marks on Merchandise, which came into operation on the 1st ult., and the other to consolidate the law relating to Patents, which is to come into force on the 1st March. The former of these, to be known as "The Merchandise Marks Act, 1899," repeals "The Trade Marks Statute of 1864," and provides that every person who forges any trade mark or sells

any goods with a forged trade mark or false trade description shall be liable to imprisonment with or without hard labour for a term not exceeding two years, or a fine not exceeding £200, or both imprisonment or fine and the forfeiture of every article bearing the false mark or description. "The Patent Act, 1889," repeals all previous Acts bearing on the subject of patents, and in the main adopts the principal provisions of the English Act, 1833. The renewal fees on patents are reduced, so that on only two occasions during the life of the Patent a tax of £2 10s. has to be paid.

A meeting of the Council of the Bradford Chamber of Commerce was held on Wednesday. Mr. James Gordon was elected to take the chair, and, upon the motion of Mr. G. J. J. Hoffmann, Mr. J. M. McLaren and Mr. E. P. Arnold-Forster were elected to fill the places on the Council vacated by the death of Sir John Behrens and Mr. J. Ambler.—Mr. G. J. J. Hoffmann was elected president for the ensuing year.—The President, having taken the chair, thanked the members of the Council for the honour done to him in electing him to the presidential chair. He then delivered the presidential address.—Later on, Mr. V. Edelstein said it might be of interest to members of the Council to know that his firm had received a telegram that morning from Portugal to execute all orders, but to send the goods under the Portuguese flag.

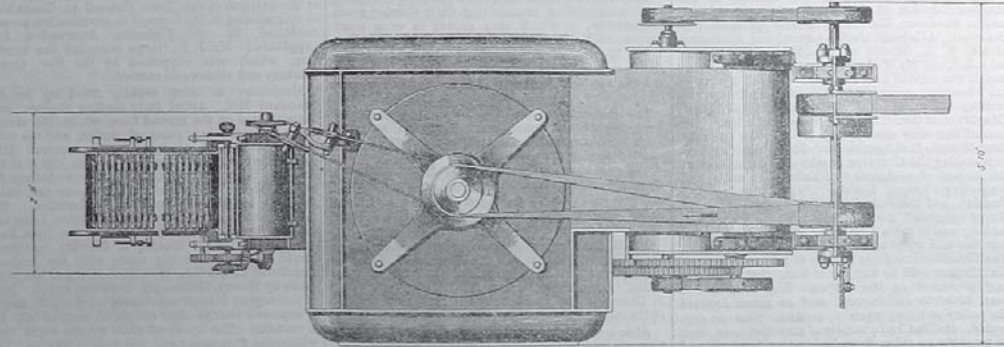


FIG. 2.—PLAN VIEW OF OPENER.

worked from the outside, the attendant is enabled to pass the cotton through one or both the beaters as may be desirable according to the class or quality of the cotton in use.

The merits of this machine in its several arrangements and combinations will be obvious from the above description, whilst other information will be supplied by the makers upon application at the above address.

THE "BAILEY-FRIEDRICH" STEAM MOTOR.—A number of members of the Arts and the Brasenose Clubs, in this city, accepted an invitation from Mr. Alderman Bailey on Monday afternoon to visit the Albion Works, Salford, and witness the working of a steam motor for electric lighting, patented as the "Bailey-Friedrich." The motor works without waste of exhaust steam, and by its advantageous construction occupies less space and, it is claimed, requires less fuel and less water than any other steam motor. The economy observed in fuel, and the fact that almost any kind of refuse can be burnt in the furnace, have already secured several continental orders for the new motor, fuel in Spain, France, and other countries being often twice or three times as dear as in England. The firing up need not be done oftener than once an hour, and it is impossible for the boiler to explode, as when the steam is up to the proper pressure the air door flap of the furnace is closed, but the moment this pressure is exceeded a piston rises and opens the door, cold air being thus admitted into the furnace. The door regains its position automatically, and the steam pressure its normal condition. The governor and valve only permit steam to be used in exact proportion to the requirements. The exhaust steam is condensed by a surface condenser and immediately pumped into the boiler, causing an unvarying water line, which is maintained by the addition of about two quarts per horse power per day. It is

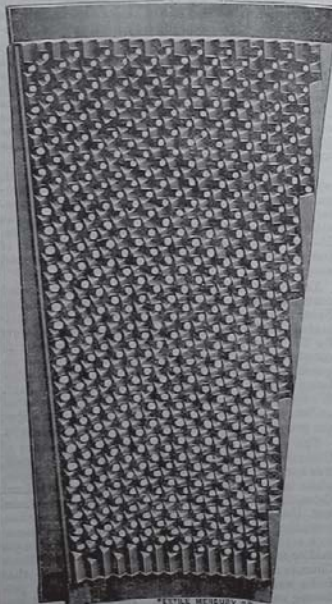


FIG. 3.—SECTION OF IMPROVED BEATER GRID.

News in Brief,

FROM LOCAL CORRESPONDENTS AND CONTEMPORARIES.

ENGLAND.

Ashton.

On Tuesday evening, at a meeting held at the Mechanics' Institute, a resolution was passed approving of the formation of a company with £50,000 capital in £5 shares for the purchasing and working of Ryecroft Mill, formerly occupied by Mr. J. S. Buckley.

Bolton.

Mr. Edward Cross, of Bolton, brother to the late Mr. J. K. Cross, was on Saturday afternoon adopted as Liberal candidate for the West Houghton Division of Lancashire, which he unsuccessfully contested in 1895.

The Bolton Technical School Committee have issued a circular asking for support to enable them to alter and equip the Mechanics' Institute, which the trustees have offered free of cost, for the purposes of a technical school, the Town Council having now expressed its willingness to take charge of and maintain the institution under the provisions of the Technical Instruction Act when so altered and equipped.

Bradford.

A strike has broken out at Manningham Mills, the men who are combined in this agitation being the "batters," "centerers," "tipplers," and "lusters," who number in the aggregate about 300. Of this number about 180 came out on Monday, and the remaining 120 have joined them. The demands of the strikers are as follow: For what