

**THE LONDON TIMES AND AMERICAN EXHIBITORS—AN INTERESTING SUMMARY.**

From causes on which there is no necessity now to dwell, our kinsmen across the Atlantic are very imperfectly represented at the International Congress. From the Southern States, of course, there was nothing to be expected, and if the matter had rested with the Washington Government there would not have been a single contribution from the Northern States. Private energy and enterprise, of which the chief merit is due to Mr. Joseph E. Holmes, the Commissioner, have to some extent supplied the deficiency, and, though we are left almost entirely in the dark as to the state of arts and manufactures in the States, the south-eastern corner of the building, at the end of the east transept, contains a numerous and exceedingly interesting collection of various contrivances for simplifying and facilitating the operations of ordinary trades. There is nothing particularly startling or imposing in the display, though occasionally the cleverness with which difficulties are overcome or some useful and all-important result obtained by the simplest means approaches almost to an inspiration of genius; but as nearly all the articles appear to have been selected because they were easy of transport, perhaps we are not wrong in accepting them as the representatives of much more important pieces which would have been sent here under a happier state of things.

The chief merit of Straker's washing machine, which stands close by the south-eastern entrance, appears to be the ease with which it deals with large heavy pieces, such as blankets and counterpanes. For hotels, hospitals and such places it must be very valuable. Conroy's cork cutters, which stands next, are very neat in their operation. The man in charge simply puts down a square of cork on a small ledge, and as the machine works two fingers are pushed out, which grasp it, and fix it on a rapidly-rotating pin, where it is applied to the edge of a circular knife, revolving horizontally, and in a couple of seconds the square assumes the desired shape and size, and immediately drops into a reservoir beneath to make room for another. A man and a couple of boys can cut 150 gross of corks with this machine in a day. The rope-making machine, which stands next, compresses a rope walk of some 800 or 900 yards into about 8 feet, and it spins a 12-strand rope quite stout and in much less time than it could be done by hand. To machinists we would point out a very simple contrivance, which they will find on the wall close by the rope-spinner, for shifting and securing machinery belts, by which, no doubt, many accidents may be prevented. By pulling a cord the belt is moved either on or off the drums, and as the guides move they are secured in their place by a self-acting lock, so that the belt cannot slip either one way or other. Eckel, of New York, sends one of his new presses, by which 1,000 lbs. of cotton may be pressed into 18 cubic feet, or 800 lbs. of hay into a truss of 5 feet by 2 feet., with a height of 32 inches, in a space of four minutes, and with a less expenditure of labor than by any other press yet invented. They are capable of exerting from 100 to 1,000 tons pressure, and one man working alone can bring 100 tons to bear. The machinery is very simple, and may be applied with equal advantage to presses for extracting oils. Hansbrow's California pump is chiefly distinguished for the ingenious adaptation of the leverage, by which immense power is saved and gained, so that a child might work it. The stream rises on the slightest movement of the handle, and when full power is put on it will throw a stream from a depth of 30 feet to a height of 85 feet through 50 feet of hose. Another advantage is that the valves are so arranged as to insure a constant supply of water in the reservoir. A cotton planter's machine is exhibited close by, which was just coming into use in the Southern plantations when the war broke out, and which promised to be a great success. With two men and a horse it will do the day's work of eight able-bodied "chattels." There is also a corn and bean planter, which effects a still greater saving of labor. The exhibitor, Mr. Prindle, maintains that it will plant 20 acres of corn per day, either on even or uneven ground, and will do the work of 30 men per day. It requires but one man to work it, and is designed to plant two rows of corn or three rows of beans, the rows being made at any distance apart.

It marks the furrows, drops any desired number of seeds, covers them, and presses the soil over them at any required pressure or depth. It has, too, an adjustable axletree which enables the guide to work the machine by the last-made track, and to plant rows of any desired width with uniformity.

In addition to the agricultural machines which were mentioned recently, there are a variety of reapers and mowers; a portable steam boiler, which can be carried anywhere to supply steam for working a machine or boiling food for cattle; a ditcher, which will cut a ditch of any depth or width, lift out the earth, and deposit it in any given place; and a self-regulating windmill, which turns its sails to the wind without any trouble to the miller. Batchellor & Sons exhibit samples of steel forks and rakes of such admirable temper that by fair usage alone it is almost impossible to break them. Blake's stone-breaker, which may be applied to crushing minerals of any kind, appears to be a machine of great power. It consists of two immense iron jaws, with graduated faces, one moveable and the other fixed. At every revolution of the crank by which the machine is worked, the moveable jaw advances toward the fixed jaw about a quarter of an inch, and returns, its return being aided by a strong spring of india rubber. If a stone be dropped in between the convergent jaws it is gripped and broken by the first bite, and the fragments fall lower and lower as they become smaller at every revolution of the crank, and are broken by each succeeding bite until they are small enough to drop out at the bottom. The distance between the two lower ends of the jaws, which determines the ultimate size of the fragments, can be regulated at pleasure. There is a model at work in the department which crushes the hardest pebbles with as much ease as if they were so many nuts, and a full-sized machine may be seen in the Eastern Annex, though it stands idle for want of power. Lawrence, White & Brothers exhibit a lock nut and ratchet washer, which makes every bolt as secure as a rivet. The washer, which is first passed on the bolt to be secured, has a raised rim, on the inner side of which is formed a ratchet, and in a slot forged in the nut which succeeds the washer is fastened a spring of iron, steel, or brass, the latter being preferred, as it may be more easily bent when required, and will not rust, which fastens into the ratchet, and thus prevents the nut from unturning.

For securing railway metals the invention is of great value, and will, no doubt, be of service in preventing that large class of accidents which arises from loose rails. Another novelty exhibited here is Drake's boring and spacing machine, which is peculiarly adapted for boring the stiles for blinds or any other wood work where a series of holes is required to be bored at equal distances apart. There is a long row of spindles and bits, all fixed on one continuous belt, and all advancing by one single movement, and the distance between them may be lengthened or decreased by the simple movement of a lever. The shoe machinery at work here already excites great interest, and on the shilling days many a holiday-making Crispin may be seen gazing in mute astonishment at the marvelous rapidity with which the work is turned out. The blank sole-cutting machine will cut out 60 soles in a minute, and the stitcher will stitch them on, sewing through and through the upper leathers without the necessity of a welt at the rate of about 50 seconds for each shoe. The heel-trimming machine is capable of trimming one pair of heels in a minute on the shoe, and the leather-splitting machine reduces the soles to any required thickness.

The most important piece of machinery exhibited by the Americans is a power loom for weaving tufted carpets, which may be seen at work in the Machinery Annex. It has already created quite a sensation among the trade, and in a practical point of view is perhaps one of the valuable novelties in the department. The great feature is that by a single throw of the shuttle it will insert, weave in, cut off, and complete one whole range of figuring tufts across the width of the fabric in less time than is required for the making of a single tuft by the hand loom. Any medallion design can be woven in parts, which may easily be united so as to have the appearance of being woven in one piece, as the salvage produced is such that when sewed the seams are not visible. The

strain on the material is so slight that common worsted or woolen yarns of any quality may be used, so that the cheapest kinds of carpets may be produced in it. The economy of time, labor and material is so considerable that the machine will, probably, effect a most important revolution in carpet manufacture.

Besides these there are various other contrivances of minor importance, but all displaying wonderful ingenuity. Mr. Bates's mechanical apparatus for curing stammering deserves notice, though it is impossible to give any verbal description which would give an adequate idea of its operation. Mr. Ward exhibits a complete series of his signal lanterns, which form perhaps the simplest and most intelligible system of ocean telegraphs yet invented, and we must not omit to mention the sewing machines, of which half a dozen may be seen hard at work at all hours of the day. There are a few specimens of cereals, and the mineral wealth of the States is represented by a few cabinet specimens, the chief of which are from the Washoe silver mines. In this case are shown two or three samples of quartz said to be worth £2,000 per ton. The arts of the States are represented by Kentze's fine statue of "America," and a few pictures which are all worthy of a position where they would attract more attention. Cropsey's "Autumn on the Hudson" is a beautiful landscape. The pianos, we understand, have been highly praised by experts, and the most remarkable novelty among them is a piano exhibited by Mr. Hulskamp, in which, by applying an extraordinary tension to the sounding board, and by an arrangement of oblique braces transmitting the vibration, he obtains an unusual volume of sound in a very small space. Mr. Hulskamp also exhibits violins, to which the same principle is applied with the same results. Taking the American exhibition as a whole, there is no department in which the exhibitors will reap more profit from their pains, and perhaps that is as high praise as we can pass upon it.

**Hand and Machine Sewing.**

The Wheeler & Wilson Company have prepared tables showing, by actual experiments of four different workers, the time required to stitch each part of a garment by hand and with their sewing machine. The results were as follows:—

	BY MACHINE.		BY HAND.	
	Hours.	Minutes.	Hours.	Minutes.
Gentlemen's shirts.....	1	16	14	26
Frock coats.....	2	38	16	35
Satin vests.....	1	14	7	19
Linen vests.....	0	48	5	14
Cloth pants.....	0	51	5	10
Summer pants.....	0	38	2	50
Silk dress.....	1	13	8	27
Merino dress.....	1	4	8	27
Calico dress.....	0	57	6	37
Chemise.....	1	1	10	31
Moreen skirt.....	0	35	7	28
Muslin skirt.....	0	30	7	1
Drawers.....	0	28	4	6
Night dress.....	1	7	10	2
Silk apron.....	0	15	4	16
Plain apron.....	0	9	1	26

	NUMBER OF STITCHES MADE PER MINUTE.		
	By Hand.	With Machine.	Ratio.
Stitching fine linen.....	23	640	28
Stitching satin.....	24	520	22
Stitching silk.....	30	550	18
Seaming fine cloth.....	38	594	16
Patent leather, fine stitching....	7	175	25
Fitting ladies' gaiters.....	28	510	18
Stitching shoe vamps.....	10	210	21
Binding hats.....	33	374	11

When the machines are driven by power the ratio is much higher, 1,500 and 2,000 stitches per minute not being an unusual average. Seams of considerable length are ordinarily sewed with the best machines at the rate of a yard a minute, and in a manner superior to hand sewing.

**On a Black Varnish for Zinc.**

M. Boettger describes a process for covering zinc with a chemical, adherent velvet-black varnish. Dissolve 2 parts by weight of nitrate of copper, and 3 parts of crystallized chloride in 64 parts of distilled water; add 8 parts of hydrochloric acid of 1.10 density; into this liquid plunge the zinc, previously secured with fine sand; then wash the metal with water and dry it rapidly.

This coating constitutes a kind of metallic alloy. It is M. Boettger's opinion, that characters in relief may be executed on a sheet of zinc by using this composition, and by employing dilute nitric acid (1 to 10), as the black coating resists the acid which attacks only the unpreserved metal.