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Clothes Pins.

Probably very few realize the extent of the manufacture of clothes pins, and the amount of capital employed in the business. Their manufacture is mostly confined to New England, and the State of Maine produces its share of the commodity.

According to the Bangor *Industrial Journal*, one of the most complete and extensive clothes pin factories is located at Vanceboro, Me. From the same source the process of manufacturing the pins, as carried on at the Vanceboro Wooden Ware Company's factory, is given.

The wood used is mainly white birch and beech. The logs are cut and hauled to the shores of the lake or the streams emptying into it, whence they are floated down to the mill. As fast as required they are hauled into the mill by a windlass and chain worked by steam power, and sawed into lengths of 16 or 22 inches—the former to be made into pins, and the latter into boards for the boxes required in packing. The 16-inch lengths are next sawed into boards of the requisite thickness by a shingle machine, then into strips of the proper size by a gang of 12 circular saws, and finally into 5-inch lengths by a gang of 3 saws.

The logs have now been cut up into blocks about five inches long and three-fourths of an inch square. Falling, as they leave the saws, on an elevator belt, they are carried into an upper story, and returning to the first floor are deposited in troughs, whence they are fed to the turning lathes, of which there are several—each being capable of turning 80 pins per minute. They are then passed to the slotting machines, in which a peculiar arrangement of knives inserted in a circular saw gives the slot the proper flange, after which they are automatically carried by elevator belts to the drying bins on the second floor, where they are subjected to a high temperature, generated by steam pipes, until thoroughly seasoned. There are several of these bins, the largest of which has a capacity of 100 boxes, 72,000 pins, and the smaller ones 50.

The pins are now ready for polishing and packing. The polishing is accomplished by means of perforated cylinders or drums, each capable of holding forty bushels, in which the pins are placed and kept constantly revolving until they become as smooth as if polished by hand with the finest sand paper. A few minutes before this process is completed, a small amount of tallow is thrown in the drums with the pins, after which a few more revolutions gives them a beautiful glossy appearance. These polishing drums are suspended directly over the packing counter on the first floor of the mill, and being thus immediately beneath the ceiling of the floor above, are readily filled through scuttles from the drying bins on the second floor, and as easily emptied upon the counter below, where they are sorted into first and second grades, and packed in boxes of five gross each. The sorting and packing are done by girls. Two hundred and fifty boxes are packed per day.

The market for clothes pins is not confined to any special locality, but is found nearly all over the world. Ten thousand boxes have been shipped to Melbourne, Australia, within the past four months. Ten firms in London carry a stock of ten thousand boxes each, and two firms in Boston carry a like amount. One thousand boxes constitute a load.

A Famous Yacht Builder.

The death of Capt. Robert Fish, at Pamrapo, N. J., January 17, deprives the country of one of the best known and successful of our later yacht builders. The victories won by many of his yachts made his name familiar to yachtsmen on both sides of the Atlantic. He was born in this city nearly seventy years ago. In 1850 he removed to Pamrapo, to establish the yard at which so many fast vessels have been built. Among his greatest successes were the reconstruction of the famous keel schooner Sappho, the Meteor, the Challenger, the Enchantress, the Wanderer, and the Vixen. Capt. Fish was a superior sailing master, as well as a remarkably successful designer and builder of fast yachts.

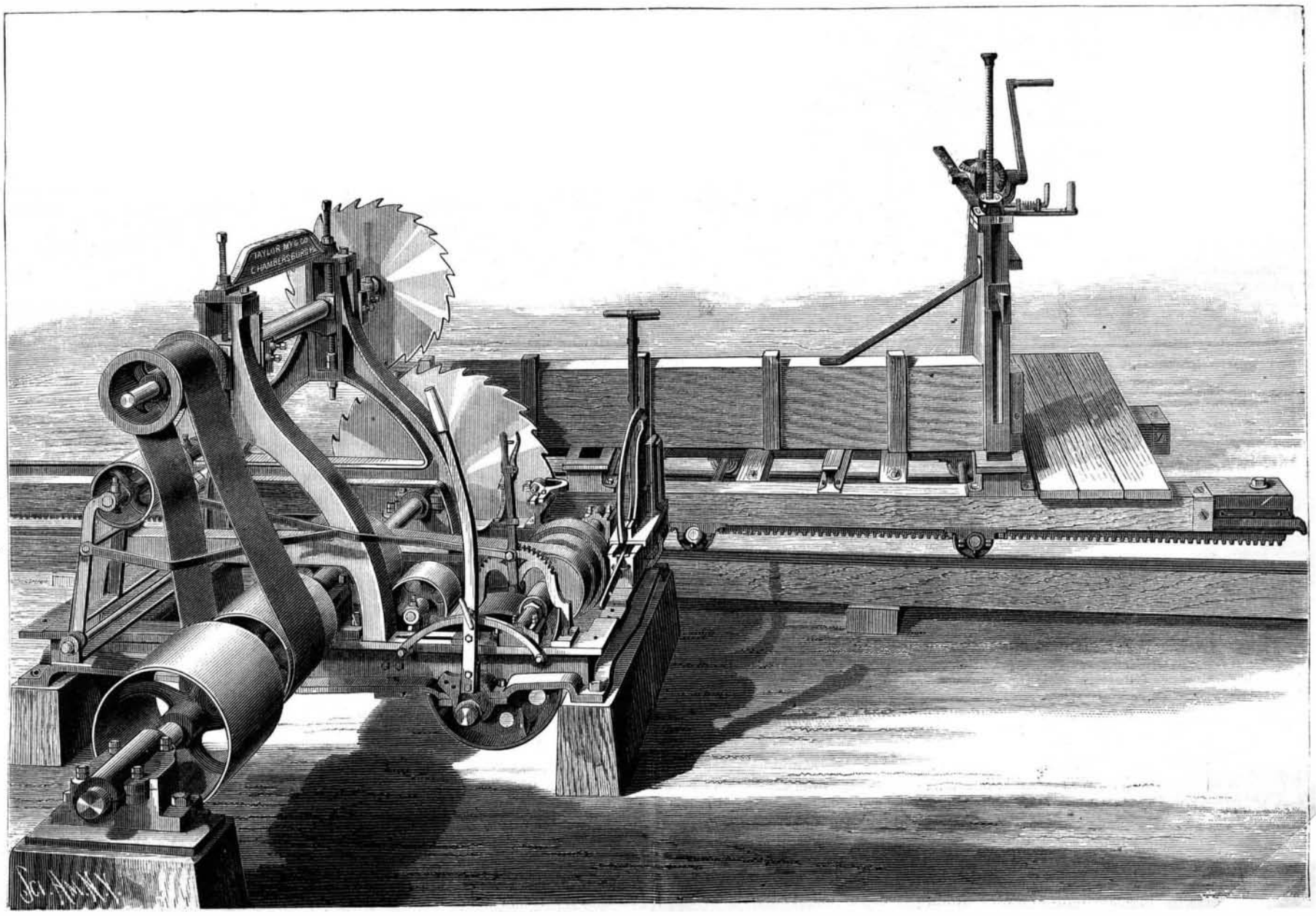
TAYLOR MANUFACTURING CO.'S PATENT SAW MILL.

We present an engraving of a circular saw mill with top saw, lately introduced by the Taylor Manufacturing Company, Chambersburg, Pa., removed from Westminster, Md., January 1st. This mill is made with the same careful excellence that distinguishes all the productions of the above establishment. The machine is very strong, and by its use the heaviest lumber can readily be handled under any power that may be applied to run it.

The set works are exceedingly simple and quickly operated. Very little time is required in dogging the log, and there is always a certainty of sawing true lumber. The set works can at all times be readily kept in adjustment and in perfect line with the saw. Owing to the construction of the log beam, it does not matter whether the track settles or is thrown out of line by the frost. If six feet of track before the saw is true, lumber will be sawed true. The simple mode of dogging the log at one end, and allowing the gauge roller to hold the log to the log beam, saves an enormous amount of time, preventing the springing of the log. This mill is arranged to set to a fraction of an inch, making lumber of any desired thickness. In this mode of dogging, a man is required to ride on the carriage, and it is claimed that in this way the man on the carriage can, as soon as the log is returned past the saw, instantly set the log to the roller and effect a great saving in time over other methods where the sawyer operates the set works from the ground.

This mill, with twenty-four feet of carriage, has two log beam blocks and one dogging block, making three blocks for twenty-four feet of carriage, the usual number being only two. The additional block gives great stiffness to the beam, and by the use of two intermediate supports between the blocks there is ample support under the log at any point of the carriage, and any length of timber can be sawed without changing the head blocks. The carriage to this mill is heavy and well stayed, and is placed on heavy axles, 2¼ inches in diameter, extending across carriage and run-

(*Continued on page* 66.)



SAW MILL WITH TOP SAW.—MADE BY THE TAYLOR MANUFACTURING COMPANY, CHAMBERSBURG, PA.

TAYLOR MANUFACTURING CO.'S PATENT SAW MILL.

(*Continued from first page.*)

ning in self-oiling boxes, and carrying heavy 8-inch wheels or rollers, which run on continuous T-rails. The extensions on each end of the carriage, which are 8 feet long in this size mill, are so arranged that they cannot spring out of gear, thus preventing stripping the feed pinion, and also allowing the sawing of lumber eight feet longer than the carriage. This is very convenient for backing the carriage to receive the log. It is an improvement that any one familiar with saw mills will appreciate. (See Fig. 3, page 259, vol. xlvii., SCI. AM.)

The log beam is moved by a lever with a simple ratchet arrangement for moving elbows of head blocks, or, as shown in cut, by crank wheel. The advantage of the crank wheel over lever is that no motion is lost, and that the log beam recedes continuously or goes forward, as is desired, is rapid, and easily handled. The gauge roller is a simple and ingenious device recently patented, and is so constructed that all wear or lost motion is provided for, and can be set to saw a thirty-second full, or a thirty-second scant, if desired. By it the log is pressed against the log beam, and as the carriage moves up to the saw, the log passing between the gauge roller and beam, it will be seen that lumber must be sawed true. By this mode of holding the log at the end next to the saw no dogging is required, the dog at the rear end being the only one necessary to hold the log to its place. We are informed that this gauge roller can easily be applied to other mills if desired.

The frame of this mill is very heavy, and is made in girder style, and so arranged as to set the carriage on either the right or left hand of the saw frame; the feed is a friction feed, with face 7 inches in width; feed belt is also wide, carrying a 5-inch belt. The main mandrel is made long (9 feet), so as to use the drive pulley on the outside of frame. It is of the best hammered steel, 3½ inches in diameter, and runs in three adjustable bearings, each 12 inches in width. The frame is made to take a saw up to 72 inches in diameter. The top frame is made very stiff and heavy with adjustments, by which the top saw can be lined to suit the bottom saw. It carries a saw up to 36 inches. It has an adjustable belt tightener to drive top saw when desired, and can be used while the machinery is running. This mill, with 48 feet of carriage, one dogging block, and four log beam blocks, weighs 12,000 pounds.

The company manufacture four smaller size mills—Nos. 2, 3, 4, and 5. Nos. 3, 4, and 5 mills have no top saw. Their No. 5 Plantation saw mill was illustrated in the SCIENTIFIC AMERICAN of December 16, 1882. This company also build cut-off stationary engines of various styles, from 12 to 250 horse power; also dry steam portable engines, from 8 to 40 horse power; and vertical engines, from 5 to 10 horse power.

For further particulars address Taylor Manufacturing Company, Chambersburg, Pa.

Weak Electric Currents.

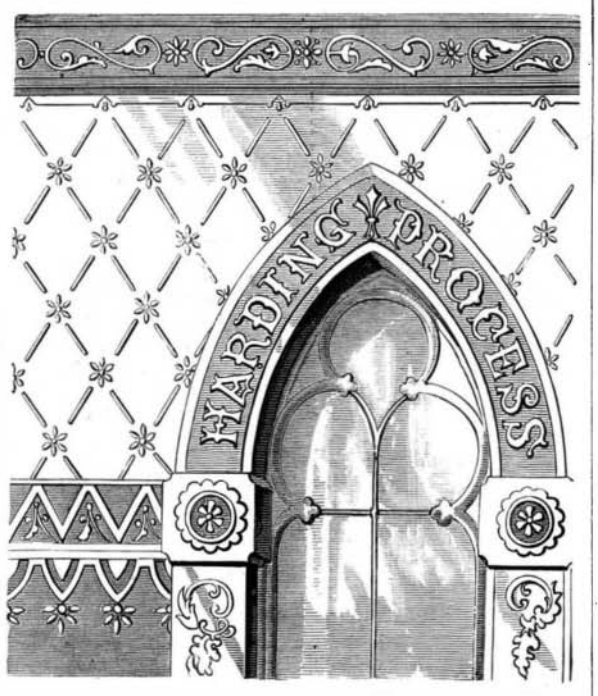
Dr. Hertz lately described and exhibited before the Physical Society, Berlin, an apparatus he had constructed for demonstration of such weak electric currents as change their direction very often, several thousand times in a second. He called attention to the defects of the electro-dynamometers previously employed for the purpose, and showed that the electric heat effect could most fitly be used in this case. The new dynamometer consists of an extremely thin horizontally stretched silver wire, the extension of which by heat, produced by the alternating currents, is observed. To this end the wire is, at its middle, wound round a vertical cylinder of steel capable of rotation about its axis, by turning of which the wire is stretched. Each extension of the wire through electric heating turns the cylinder the opposite way to this torsion, and its rotation is observed by means of a mirror and telescope. This dynamometer, as Herr Hertz showed, is only applicable when the currents are weak, and the current reversals are very frequent; that is, precisely in cases where other measuring instruments fail.

An Enormous Tumor.

A recent number of the *Medical Record* contains engravings from photographs of a woman who was afflicted with a tumor weighing eighty pounds. It was attached to the abdomen, and the picture shows the patient in a sitting posture, holding in her arms and on her knees a large bundle, which formed her undesirable appendage. After much entreaty from the poor woman that an operation for her relief might be tried, the surgeons of the Cincinnati Hospital finally consented; and Dr. N. P. Dandridge performed the hazardous work with great skill, being assisted by Dr. E. W. Walker and the hospital staff, in the presence of the medical class and a large number of neighboring physicians. But the shock to the patient was very profound, and her inherent strength not sufficient. She survived a week after the operation. This was a subcutaneous fatty tumor, one of the largest ever known. It was 35 inches long and 67½ inches in greatest diameter—nearly as large as a barrel of flour.

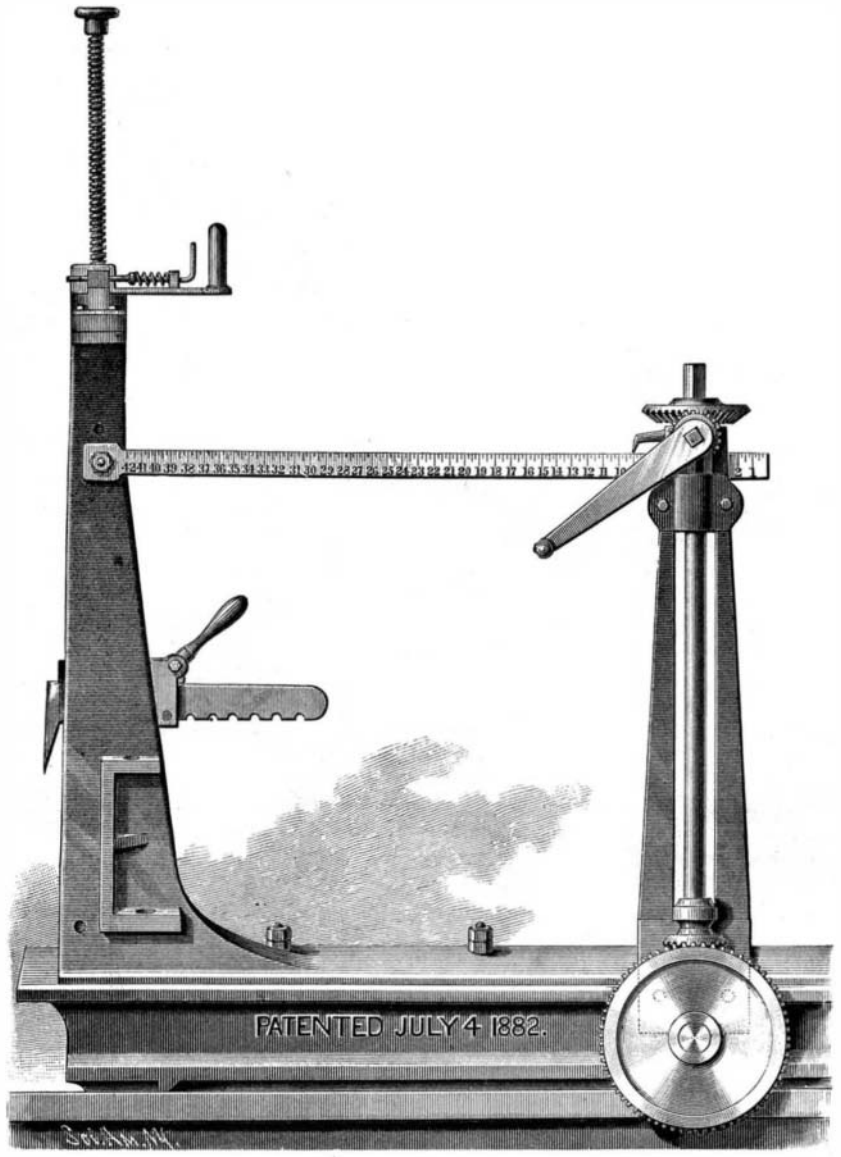
THE HARDING PROCESS OF EMBOSSING ON WALLS.

The number of house owners able to decorate their dwellings with mural carvings is few compared with those who are able to appreciate such home adornments and would be glad to have them. In this, as in many other instances, popular taste has run ahead of the capacity of the average purse to buy. Accordingly, the invention of means by which genuine artistic effects in raised figures can be produced cheaply, almost mechanically, yet allowing the utmost freedom of choice or individuality in design, finds a numerous public ready to welcome it.



THE HARDING PROCESS OF EMBOSSING ON WALLS.

The new process of mural decoration, illustrated in the cut, is as simple as it is admirable in its effects. The designs, which may be varied unlimitedly to express the taste or fancy or purpose of the occupant of the apartments to be decorated, are drawn upon suitable material and cut into stencils. The plastic substance to form the raised figures is applied to the wall through the openings of the stencil, the thickness of the stencil material determining the height of the figures. By laying one stencil over another, any details of the figures may be raised to any height desired. The figures are thus part of the solid wall, at once relieving its dead flatness and furnishing an admirable foundation for color effects. Most beautiful results can be arrived at by artistic manipulation. The great advantage of this process over moulding or stamping lies partly in the low relief of the ornaments and in their applicability to old as well as new walls, without the aid of glue or paste to hold them in place (thus obviating decomposition in presence of damp and making it one of the healthiest decorations), but more to the circumstance that the freest expression of individual invention and preference may be enjoyed without adding to the cost of the work. Any plastic material may be used, and applied to curved as well as flat surfaces. Specimens of this work are exhibited at Caryl Coleman's art rooms, 821 Broadway, New York city. The inventor is Mr. J. H. Harding, Milwaukee, Wis.



HEAD BLOCK.—TAYLOR MANUFACTURING CO.'S SAW MILL.

Supreme Court Decisions.—The Clough Gas Burners.

Among the patent cases recently decided by the United States Supreme Court are two between Theodore Clough and the Gilbert & Baker Manufacturing Company. The first was a suit brought by Clough against the manufacturing company for infringement of his patent upon an improved gas burner. The claims of the Clough patent were sustained, and the decree of the lower court reversed. The second suit was brought by the Gilbert & Baker Manufacturing Company against Clough for alleged infringement of a patent on improvements in gas burners granted to John P. Baker, July 26, 1870.

The court held that while the Baker patent covered new, useful, and patentable modifications, it yet clearly infringed the claims of letters patent granted to Theodore Clough, July 26, 1870. Both opinions were by Justice Blatchford.

Preparation of Spongy Tin.

Tin precipitated from its salts by means of zinc is chiefly employed in making silver paper and printing textiles. It ought to be very light, of a bright gray color, and cover well like white lead. The following process for making a preparation having all these properties is described by C. Puscher in *Kunst und Gewerbe*:

Dissolve one part of tin salt in 400 parts of water acidified with hydrochloric acid. A rod of zinc is put in this solution and the precipitated tin, most of which floats on the surface, is carefully collected on a sieve without pressing, washed with water, and dried by warming. The tin sponge thus obtained can be readily pulverized in a mortar with water, and floated on a hair sieve without acquiring a metallic luster. After triturating well with starch paste it is ready for use in making silver paper, or in printing textiles. The small quantity of tin sponge that remains on the sieve is dissolved in a mixture of equal parts of water and hydrochloric acid, and used to mix with the next solution of tin salt instead of acid. The same liquid can be used from ten to thirteen times in making tin sponge by repeated additions of tin salt. The zinc chloride thus accumulated can be concentrated by evaporation, and used in soldering or in cleaning iron ware that is to be tinned.

Instead of using it as above, the tin sponge can be dried and ground to a fine gray powder and employed as an efficient and economical means of tinning all other metals except lead. For this purpose the tin powder is rubbed up into a paste with a hot saturated solution of sal ammoniac, and the metal to be tinned is painted with it. This is repeated according to the amount of tin it is desired to deposit on it, after which it is heated over a spirit lamp or a Bunsen burner. The tinning is effected in about one minute; it is only necessary now to wash the article and polish it with chalk to give it a good polish. This process can also be used to mend spots that have been formed on tinned articles, or to make white drawings on other metals.

If the spongy tin is mixed with 5 to 10 per cent of reduced antimony and 5 per cent of powdered sal ammoniac and a little water, the paste can be applied as before, and produces a still whiter and harder coating of Britannia metal.

Reduced antimony is obtained as a black powder by dipping a rod of zinc into a solution containing equal parts of antimonic chloride and water, to which, however, enough hydrochloric acid is added to dissolve the white precipitate first formed. The black precipitated antimony is collected on a filter, well washed with water, and then dried.

The spongy tin above described is sold in Germany, says our informant, at five marks per kilogramme, which is about 57 cents per pound.

AN international exhibition will be opened in Calcutta next December, and will close on February 29, 1884.