

feet of hard pine, 2,056 tons of white oak, and 336½ tons of iron were used. Fifty thousand days' work were done on her hull alone. She was towed to New York, but, while there, took fire and was burned at the wharf. Her upper works were rebuilt, and her size reduced about one-third. Her greatest speed has been 413 miles in twenty-four hours. Mr. McKay built many vessels in 1854 and 1855, but in the latter year the ship-building interests began to decline. His last ship was The Glory of the Sea.

AMERICAN INDUSTRIES.—No. 57.

THE MANUFACTURE OF PARLOR FURNITURE.

It is said that when Jenny Lind first visited America, and after she had been some time in New York City, she inquired where our "poor people" lived. She saw so many signs of thrift, comfort, and prosperity everywhere, so many evidences of culture in every class of people with whom she came in contact, the residences so commodious, and the people so well clad, in comparison with what she had seen in the Old World, that it appeared to her, even after she had been for some time in New York, that she had only become partially acquainted with real life here. In the prosecution of no other one line of business, perhaps, is this distinction so clearly brought out as in the industry which we this week make the subject of our first page illustrations. In no other country in the world has such an industry heretofore been possible, carried on in the manner and according to the scale on which it is here conducted, for, although it is true that equally beautiful and far more elaborate specimens of household furniture and decoration are to be met with in the mansions and palaces of the older countries of the world, such work there is almost always made to order, and obtainable only by the few, at a cost far exceeding the price of quite as serviceable and very similar goods here.

There has been a rapid development of this branch of business within the past twenty years, and with its growth has come a natural division according to which the different specialties are made exclusively by particular manufacturers. The manufacture of dining-room and chamber furniture each constitutes separate lines of business, while parlor furniture is a specialty of itself, and the leading details of this department of the trade are shown by our artist, as the industry is conducted by Messrs. M. & H. Schrenkeisen, of New York City.

The first operation in the manufacture is represented by the view at top of first page, where the log, as it comes to the factory, is taken by a large band saw and cut into the thicknesses and lengths required. This saw runs on a wheel about five feet in diameter. An adjoining view shows a smaller band saw, used to cut up plank and boards and further divide the lumber into the different sizes to fit it for the several pieces to be made. There are seven of these band saws and nine jig or scroll saws in constant operation. The wood having been cut to the required size, the first detail of the manufacture consists in the marking of the patterns thereon. This was formerly done with a pencil, but now stencil patterns are made in zinc, by which the pattern is so plainly shown on the wood that there is much less liability to error in cutting than was formerly the case.

Previous to the work on the jig saws, nearly all the pieces have to go to the boring machine, where holes of different sizes are put through such parts of the pattern as required to enable the workman to pass through the end of the saw in cutting out the design. These holes are usually bored in places where the curves are so small that it would be difficult to work them out with the saw, although some of the jig saws are less than an eighth of an inch wide. The workmen in this department, however, from long practice, are able to follow the intricate patterns with such firmness and facility that the most complicated designs are worked out with great rapidity, and apparently without the least pause or hesitation.

The friezer, or machine carver, shown in one of the views at the top of the page, takes up but little room, but the variety of work it will do is almost unlimited. There are several modifications of this machine, for different classes of work, but the essential principle in them is the revolution, on a small axis, of different shaped knives, according to the design of the work, the wood being pressed against the knives in the line of guides and gauges adjusted to the particular pattern. In this way the machine may be adjusted to do almost any kind of carving desired, but it is found more economical in practice to do a large proportion of the carving by hand, rather than fit up the knives and patterns for the machine for all the new and elaborate designs in carving which are always being introduced.

The variety moulder, shown in one of the illustrations, represents only one of several machines in operation for this department of the work, but it is one which will cut almost everything known to the trade in the way of mouldings. The planing and turning machines, which are also the subjects of separate views, are of several sizes, and of patterns entirely familiar to all wood-workers, but the "jointer" is a machine less commonly known. It is to put a smooth edge or corner on pieces to be joined together, and it makes the edges and angles, either flat or any desired bevel, so smooth and even that when two pieces of wood of the same grain are placed together it is difficult to see where they join. The sand-papery machine shown at the bottom simply represents arms covered with sand paper, which are made to rotate very rapidly while the workman passes the rough surfaces over them to smooth off the unevenness made by the saw or planer.

The carving by hand, of which a view is given in one of our illustrations, forms a very important part of the work done at this establishment, at which from thirty to forty expert hands are kept regularly employed. This work is all done by the piece, from original designs gotten up by the house, the firm being constantly engaged in contriving something new which is likely to please the artistic taste of the community. In this way they will get up a suit of parlor furniture, subject it to criticism, make possibly considerable alterations in it, decide on the different ways in which it will be upholstered, and then have from one to two hundred sets made of this particular style. No one outside of their own immediate business is allowed to know what their new designs are until these sets of furniture are finished and ready to put on the market. In short the firm take the log as it comes from the woods, and do every part of the work necessary to make therefrom the completed furniture as it appears in the parlor, and all from new and original designs of their own.

One of the most important details of the work, without the most sedulous care in regard to which it would be impossible to make durable work, is the proper seasoning of the lumber. Only the best seasoned wood is used to start with, but it is almost impossible to thoroughly season a thick plank all through. After the work is cut out in the rough, therefore, the pieces all go to the drying room, a large apartment with slatted floors, under which run steam pipes, by which the temperature can be kept up to and above 100° Fahrenheit constantly. In this way the moisture is thoroughly evaporated, and all after danger of cracking from exposure to unusual warmth is avoided, as the finely finished work, in which the pores of the wood are all closed, and its surface has a glass-like polish, will not allow of its afterward absorbing moisture from the air. The cracking which sometimes happens in very old furniture does not arise from this latter cause so much as from the improper gluing of panels, etc., a detail which here receives careful attention.

The upholstering and finishing of the work is all done at the warerooms, on Elizabeth street, near Canal street, where the firm occupy a six story building, L-shaped, but covering a space equal to 50 by 150 feet. This building, as also the factory on Monroe street, 100 by 100 feet, and six stories high, are shown in the view in the center of the page. A 100-horse power engine furnishes the power required at the factory, and this is run almost entirely by the shavings and turnings made in the work.

Most of the goods now made are of cherry, "ebonized," as it is called, and black walnut. The ebonizing is done by dipping the furniture in an acid coloring bath, which turns it black and eats its way into the wood so as to give more than a surface coloring, and a scratch or light cut shows black underneath. In this style of furniture a large portion is finished with lines, bands, and beading in gold leaf, though some of it is also made in plain black, either brightly polished or what is called a dull finish. In the upholstering department the final work of finishing is never put on the goods until just before shipment, as finished furniture of the finest quality requires great care. In sofas, easy chairs, rockers, etc., steel springs, hair, and moss, are used, as may be required for different kinds of goods, but only the best qualities of any kind of stock are employed, and, although a fine finish is always obtained, the work is throughout of the most solid and substantial character.

The firm are the owners of several patents connected with the furniture manufacture, among the most successful of which have been their patents on spring rockers, for which they had a great run for several years after they were introduced, and which still form a leading article in the trade. They have also obtained a number of patents on band embroidery trimmings and coverings. The most of the goods used for coverings are imported, orders being given on samples sent here by European manufacturers, with the agreement that the firm shall have the exclusive control of these styles for a definite period, or until they shall have had time to put their goods on the market. The variety of these coverings is very extensive, embracing almost everything in the way of raw and finished silk, figured stuffs in satin, tapestries, reps, serge, damask, plush, etc., the patterns of only a small portion of which can be found in the large and handsome illustrated catalogue issued by the firm. In order, however, to keep their customers and agents fully informed in regard to the new styles they are constantly getting out, they have a photograph establishment fitted up in one portion of their warerooms, where they make prints of each new set of furniture when it is ready to put upon the market, and from which they receive orders from agents and dealers.

The firm have already done some business in the way of exporting furniture, but the foreign demand for ready-made upholstered parlor furniture, which is the particular specialty of this house, is relatively far less than is the call for these goods in our own country, where almost every well-to-do mechanic has his parlor, or "best room," furnished in a way which is almost unknown among the same classes in other parts of the world.

DECISIONS RELATING TO PATENTS.

By the Acting Secretary of the Interior.

EX PARTE GREAVES.—CONDENSING CYLINDER FOR CARDING MACHINES.

Bell, Acting Secretary.

1. The Commissioner of Patents may issue a patent for one or more of the divisions of a reissue application, and subsequently issue a patent to the applicant for the remain-

ing divisions, if it be held that otherwise he is entitled to them.

2. Until an application for reissue is ended in all its divisions the vitality of the original patent continues so far as required to support that portion of the application which remains undecided.

By the Commissioner of Patents.

EX PARTE LEE.—COUPON RAILWAY TICKET.—APPEAL FROM THE EXAMINERS-IN-CHIEF.

Marble, Commissioner:

1. The patentable features of a railway or other ticket, like those of any other substantive thing, must depend upon peculiarities of mechanical construction.

2. The printed matter upon a ticket is nothing more than an arbitrary direction as to how such ticket is to be used, and can have no bearing upon the patentability of the ticket itself.

3. A railway ticket anticipated by an internal revenue stamp where the system and the manner in which it is carried out is substantially the same.

4. Duplication of checks or coupons as a matter of expediency, obviously suggested by the necessity of the case, does not require invention.

THE FRANKLIN SEARCH EXPEDITION.

The members of the Franklin search party under the command of Lieutenant Frederick Schwatka, U. S. A., were picked up, August 1, by a New Bedford bark, at Depot Island, Hudson's Bay, where they had been since March 4. The party had been for two years exploring the regions north and northwest of Hudson's Bay in search of relics of Sir John Franklin's expedition. Reports of the first year's work were received and published about a year ago. Having come to the conclusion that the records of the Franklin expedition might be preserved in cairns in King William's Land, Lieutenant Schwatka set out on the first of April, 1879, to look for them. During the succeeding eleven months he accomplished the longest sledge journey ever made in an unexplored Arctic country, traveling in all 3,251 statute miles. It was the first sledge journey ever made that covered an entire Arctic winter; and the temperatures experienced exceeded in frigidity anything ever before encountered by white men in the field.

On January 3, 1880, the thermometer sank to 71 degrees below zero, Fahrenheit, or 103 degrees below freezing point, and during the entire day it did not rise above -69 degrees. During sixteen days the average temperature was 100 degrees below the freezing point, and during twenty-seven days it was below -60 degrees. All this time the party traveled, in fact they never halted a single day on account of the cold.

During the summer and fall of 1879 they made a complete search of King William's Land and the adjacent mainland, traveling over the route pursued by the crews of the Erebus and Terror upon their retreat toward Back's River, and while so engaged the party buried the bones of all those unfortunates remaining above ground and erected monuments to the memory of the fallen heroes. Their research established the mournful fact that the records of Franklin's expedition are lost beyond recovery.

A large quantity of relics were gathered by the party to illustrate the last chapter of the history of Sir John Franklin's expedition. From each spot where the graves were found a few tokens were selected that may serve to identify those who perished there. A piece of each of the boats which had been found and destroyed by the natives was brought away, together with interesting though mournful relics in the shape of the prow of one of their boats, the sledge upon which it was transported, and part of the drag rope upon which these poor fellows tugged until they fell down and died in their tracks. In addition to these the party secured a board which may serve to identify the ship which completed the northwest passage.

They also brought the remains of Lieutenant John Irving, third officer of the Terror, which were identified by a prize medal found in his opened grave. The party endured many hardships and were threatened with starvation after their return to Depot Island, where they failed to find the supplies which were to have been left there for them by the schooner Eothen. The party suffered no serious sickness while in the field.

A Remarkable Group of Solar Spots.

To the Editor of the Scientific American:

One of the very finest groups of sun spots it has ever been my pleasure to witness was observed by me through the five-inch Newtonian telescope yesterday morning, September 12, 1880. It was situated then about midway from the center of the sun's disk and the western limb south of the equator. Its length was enormous, occupying a space equal to one-quarter of the sun's diameter, and therefore over 200,000 miles in length. I present herewith a sketch made of the group at the eyepiece of the telescope, and which conveys but a faint idea of its grandeur. At A and B were quite large spots, surrounded by a very delicate penumbra, while at C was a most beautiful cluster of small spots. The whole group was remarkable for its brilliance and distinctness. In addition to this large group there was a fair-sized single spot near the center of the disk, with a faint penumbra and dark markings in its vicinity; also a faint double spot below this one.

WILLIAM R. BROOKS.

Red House Observatory, Phelps, N. Y.,
September 14, 1880.