# Science and Art.

### The New Atlantic Telegraph Cable.

The cable of the New York and Newfoundland Telegraph Company, which was lost from the steamer *James Adger*, weighed five tuns to the mile, had three conducting wires, each about as thick as a knitting-needle, and a flaw of either of these was sufficient to stop the electric current from one end to the other.

The new cable now making in England will be made of small copper wires twisted together, and will not be more than half the thickness of the old cable. According to the contract, this should be laid and in working order next month.

The Trans-Atlantic cable will have but one conductor made like the above, and will weigh about three fourths of a tun to the mile. The distance rom St. Johns, Newfoundland, to the nearest point on the southern coast of Ireland is 1,647 miles. The cable will be 2,400 miles long, and is to be laid by two steamers, each of them to have on board 1,200 miles of cable, weighing 900 tuns. After joining the ends of the coils, and dropping them in the ocean midway between the two points they are to connect, they will start for their separate places of destination. It is estimated that ten days will be required to accomplish this work.

### The Iron of the World.

The annual production of crude iron throughout the world is estimated at 6,000,000 tuns. Of this, Great Britian produces 3,000,000, France 750,000, Prussia 300,000, Austria, 250,000, Belgium 200,000, Russia 200,000, Sweden 150,000, the lesser German States 100,000, the United States 750,000, and other countries 300,000.

### Philadelphia Flour Mills.

In Philadelphia there are 15 steam flour mills. They grind up 52,245 bushels of wheat weekly, and manufacture 11,610 barrels of flour. The number of runs of stones which do this is 68.

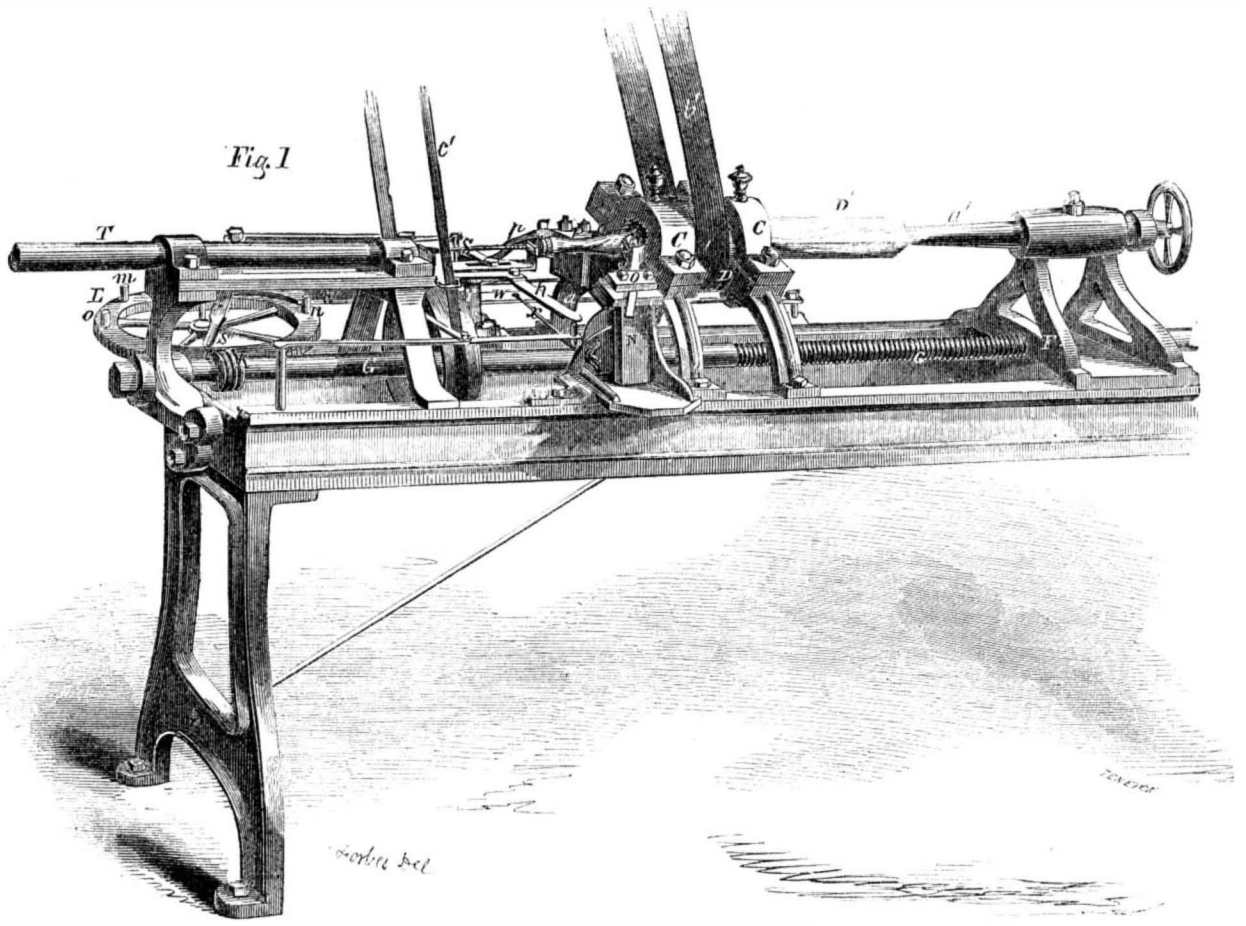
### Improved Turning Lathe.

The improvement herewith illustrated, forms the subject of Letters Patent granted Oct. 10, 1854, to Samuel Carpenter, of Flushing, L I. The invention is intended for the turning of regular forms, of different patterns, such as table legs, bedstead posts, ornamental pickets, tool handles, &c. The variety of pattern to which it can be extended is almost indefinite.

In our engraving, C C are the bearings of a hollow mandrel, D, through which the stuff to be turned, D′, is pushed (as per arrow) by the centerer, *a*′, of carriage F; the latter is drawn along by means of screw G, operated by belt *c*. Within the mandrel there are longitudinal springs which bind on the stuff and prevent it from wabbling, while at the same time they permit it to feed through. O O are cutting tools which act on the stuff as fast as it issues from the mandrel; O O are attached respectively to spring holders, N and P, and it is by the moving out or in of these holders, thus causing the cutters to cut deeper or less, that the wood is fashioned. The movement of N and P is effected by connection with the lever, W, having at one end a pattern plate, against which the pins, *m n o*, press, while wheel, L. on which the pins are placed, revolves. The cutters will therefore produce a form in the wood which is just the reverse of the pattern plate. Any desired form may be obtained by producing a pattern plate for the purpose; and the lathe may be quickly changed from one description of work to another, by simply changing the pattern plate. The number of pins on wheel N, will depend on the length of the pattern plate; if the article turned is small, the number of pins may be increased. The holder, N, is connected with lever W, by means of the cross rod, *x*, and holder, P, by means of the tail piece, or lever, *p*. Wheel L is rotated by gearing with screw K. Attached to rod T is a bit, S, for boring the handle or whatever article is being turned; the bit is moved up by means of hand lever S′; there is a gauge for regulating the exact depth to which bit S bores the article; *h* is a lever which throws off the belt, *c*, and stops the feed screw, G, the instant that a given pattern is finished.

## IMPROVEMENT IN TURNING LATHES.

Fig. 1




We have seen specimens of work produced by this machine which were perfectly finished and smoothed, requiring no after retouching.

We have also witnessed the operations of the lathe; it works with great rapidity and precision; 500 handles can be turned per hour with ease; the parts are strong and simple; it is in our opinion a most excellent. practical invention.

Mr. Charles Barnum, 29 Park Row, New York City, is the assignee of the improvement and will be happy to give further information.

## MACHINE FOR BENDING PLOW HANDLES.

This is the invention of Mr. Benjamin F. Avery, of Louisville, Ky. Patented Jan. 22d, 1856. It consists of a block, A, to which the former, B, is attached by means of a staple, C. The former, B, is furnished with two curved shelves, D D′, over the top of which the plow handles, E, are bent. F is a seat attached to former, C, for receiving the lower end of the handle. After the handles have been steamed they are clamped in an upright position by means of the screw spring rod, G, the spur nut of which, G′, holds the upper end of the handle while the lower end sets in seat F. The lower end of rod, G, hooks under the bottom of seat F. By turning the hand screw seen at the end of each spring rod, the plow handle is clamped with any desired degree of firmness. When thus placed and secured it is ready for bending, which operation consists in pulling the handle and spring rod down, from the upright to a horizontal position, as shown in the cut. The spring rod is looped at G″, so that when bent down a pin may be inserted across the back of the handle and through one of the holes in the outer extremity of former, B, so as to hold the handles down; thus secured they may be left in a bent position as long as necessary. Two handles may be simultaneously bent at once, one on each shelf (D D′). H is an extra steel spring. I is a hook to hold up spring rod G in a perpendicular position.

Fig. 1

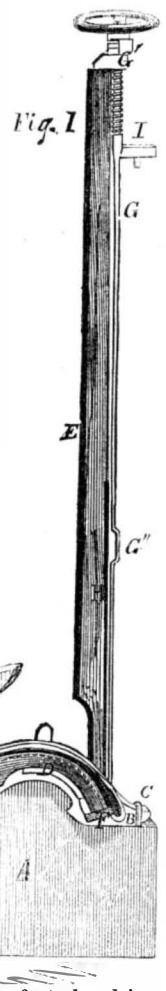



Fig. 2




This apparatus is made of steel and iron therefore it is very strong and durable. It is the essence of simplicity, while the work it produces is said to be of the best quality. The fiber of the wood, we are informed, is not stretched during the bending operation, as in other machines, consequently, nearly every handle comes out perfect. By its use ordinary tough wood can be bent over a ten-inch curve and yet remain solid and sound, we are told; so that a choice of small trees is not required It may be operated with great facility. The inventor states that with one man and a boy using a single machine, 1000 handles can be bent in ten hours. The expense of construction is quite small, being only from $4 to $7. For further information address the patentee.