

## New Inventions.

## American Inventions in Austria.

A morning cotemporary very properly remarks that so far as the particular attention of European nations to the progress of the American people in arts, sciences, and manufactures is concerned, we must certainly place Austria amongst the first. The Austrian railways are the only ones in Europe where the American form of railroad carriages is exclusively employed. Our general system of construction and arrangement of the parts of locomotives is extensively adopted in that country. The first river steamboat for the Old World on American principles was constructed for the Danube, and since that time two immense boats of fifty feet beam and eighty-two feet outside of paddle wheels, have been built for that river on the American model, and with engines furnished from New York. Morse's electric telegraph has from the very start monopolised the Austrian telegraph wires, and there is scarcely a large farm in that extensive empire, or a large manufactory that cannot show some evidence of American ingenuity. An American balance dock of the largest description is now being constructed at Vienna. The timber for that dock is furnished entirely from this country, and all the mills on the North river which have been standing still for months are now busily employed in the sawing and shipping of that timber. The main portion of the machinery for that dock is also being constructed in New York. There seems to be hardly an American invention of the higher class that has not found its way into Austria, and it is a matter of surprise and gratification to the American traveler visiting Austria, that the home talent is so much appreciated in a country which has been almost a stranger to us, and of which, as a general thing, we have so imperfect a knowledge.

This increased general introduction of the works of American genius and skill into Austria of late years is in a great measure attributable to the persevering efforts of Chas. F. Looney, who, before assuming the office which he now holds of Austrian Consul in this city, was actively engaged in his profession of civil engineer in Vienna.

## Improved Spoke Machine.

This machine combines within itself all the parts requisite for the putting together and fitting into their proper places, true and exact, all the different portions of a carriage wheel, and the operation is very simple. It is intended to be worked by hand, although it can be operated by power if necessary, or should there be power already in the shop where it is fixed. Our engraving is a perspective view, and from our description of the operation, the machine will be thoroughly understood.

A is a frame combined with the two frames, A'. Each of the frames, A', has a block, I, that can slide along it, and carry face plates, L, through these blocks and face plates pass screws, J, which are operated by the hand wheels K, or by the crank, k, which is on one of them. Between these face plates, L, with the screws passing into the center of the hub, the hub is placed and screwed up firm and secure.

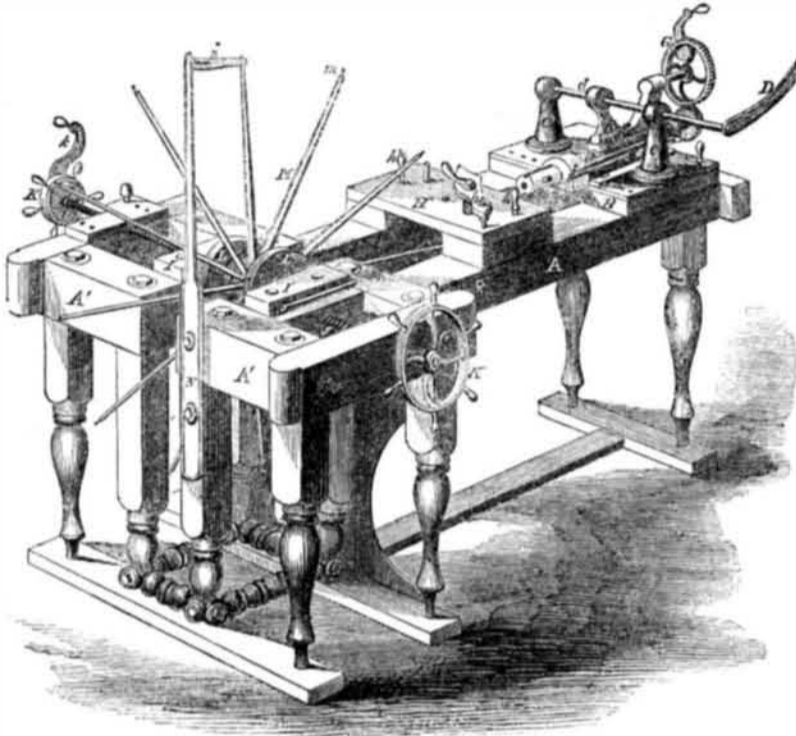
On the frame, A, is a block, B, which can be moved to any position on the frame and held there by a bolt and nut, from a plate on this block rise two pillars, C, that serve as journals for the axle, d, to which is attached a long lever, D, and this axle also carries a small segment, E; a tool-holder, F, is free to be rotated through the journal, f, by the handle and gear, G, or to be moved back and forth only by the motion of the lever, D. The first operation is, of course, boring and mortising the hubs, which is performed by putting an auger into F, and letting the lever, D, by its own weight, give it the necessary feed; the handle, G, is then rotated, and a hole is bored in the hub. The distance which the holes are

to be apart is regulated, so that each is an equal distance apart, by a stop on one of the face plates, L.

The boring being complete, the auger is removed, and a mortising chisel put in its place. F is prevented from rotating, but allowed to slide, and the mortising motion is given to the tool by means of the lever, D, and segment, E, and the hub is fed to the

chisel by the large wheel, K, which pushes the hub, face plates, and blocks, I, along, or draws them back when the nut of the other screw is removed. Both the screws, J, being now put in gear, the hub is placed in its proper position, and the spokes taken and driven in; they are adjusted, and have the necessary dish given them by means of the guide, n, which is supported by the bar, N,

## GUARD'S CARRIAGE WHEEL MACHINE.

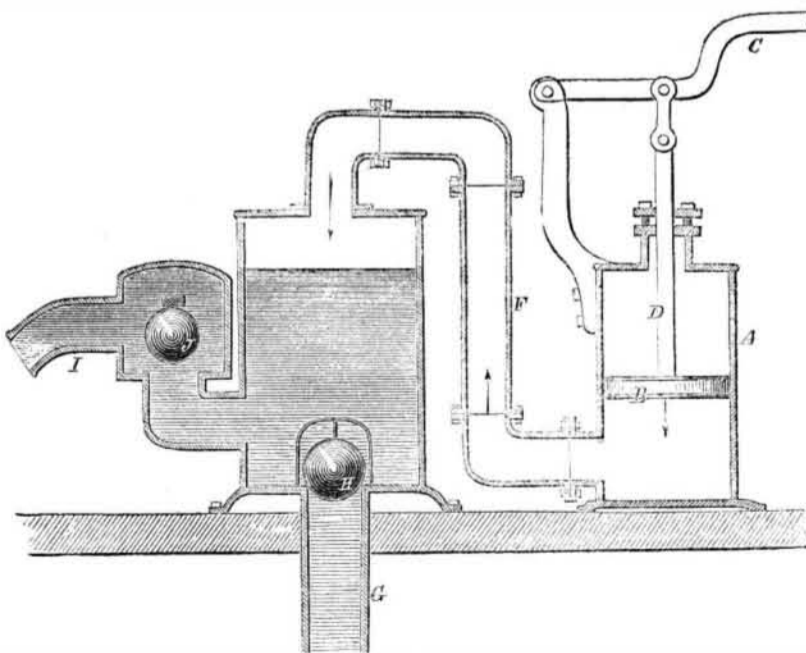


from the frame. We should also state that the bevel of the mortise is adjusted by moving the plate from which C rise on B until the right angle is obtained, and then fastening it by a peg. The spokes, M, being now all driven home, a hollow auger is fitted into F, and a clutch or support for the spoke placed on A, and by rotating the handle, G, the tenon, m, is cut on the end of the spoke; when these are all cut, the wheel is removed, and the piece, H, is placed on the frame, E. This piece, H, admits of the felly being correctly bored, by means of the clutch, h, and the handles, h', it is held quite secure and firm during the boring. The hub can be bored for the axle box, by fitting a small tool on to the screw, J, and passing it inside, and rotating it by means of the handle, k. We have seen the hubs bored and mortised, the spokes driven

in and tenoned, and the fellys bored, of three sets of wheels, or six large wheels and six small ones, in between six and seven hours by one man in one of these machines. An extra piece can be supplied so that they will be applicable for any kind of mortising, and with little trouble one of them can be transformed into a lathe. We believe that it is one of the most useful machines for carriage builders and wheelwrights ever yet produced.

It is the invention of C. H. Guard, of Burlington, Vt., and was patented by him Oct. 20, 1857. Any further particulars can be obtained by addressing him as above, or S. C. Hills, No. 12 Platt street, New York. A machine can be seen in operation at Messrs. Brewster & Co.'s extensive carriage manufactory, Nos. 372 and 374 Broome street, this city.

## SHELDON'S IMPROVED PUMP.



When any corrosive liquid, or one which has a tendency to oxydize, to abrade, or eat away, the surface of metal (or, in fact, any substance of which pumps are usually constructed) has to be raised, the operation is always difficult and expensive, because the

valve seats of the pump and the piston packing get quickly damaged, and the pump rendered useless. The pump we are about to describe is one for the purpose of raising such liquids, and is so arranged that the liquid never comes in contact with the pistons, but

there is a supplemental chamber in which it is received, and which is provided with ball and socket valves. This supplemental chamber and valves may be made of any material which is non-corrosive.

Our engraving is a vertical section of one of these pumps, and its arrangement will be thoroughly understood by the following description.

A is the cylinder, and B is the piston, connected by the piston rod, D, to the lever or handle, C. E is the supplemental chamber, being in communication with the cylinder by the pipe, F. G is the induction pipe, with its valve, H, and I is the eduction pipe, with its valve, J.

The operation of this pump is very simple; but before describing it we would mention the fact that the supplemental chamber can be placed at any distance from, and in any relative position with, the cylinder. Suppose that the handle, C, be raised, the piston being also elevated, a partial vacuum is created in the cylinder, and in the supplemental chamber, and the fluid rushes in by atmospheric pressure, through the induction pipe, G. The valve, H, then drops, and retains the liquid in E, and the lever, C, and piston, B, being now depressed, the air is compressed in the direction of the arrows, and forces the liquid through the eduction pipe, I, lifting up the valve, J, and allowing it to drop into its seat again when the lever is again elevated.

This simple and perfect pump is the invention of H. A. Sheldon, of Middlebury, Vt., and was patented by him December 15, 1857. He will be happy to furnish any further information upon being addressed, as above.

## Burning of Steamboats.

The steamboats burned on our Western rivers this spring make up a long and dark catalogue. On the 2d inst., another, the *Sultan*, was added to the list, having been consumed near St. Genevieve, while on her passage to New Orleans from St. Louis. By this deplorable event, it is reported, thirty persons lost their lives. Accidents—so called—on steamboats, are becoming as common as before the new steamboat law was passed in 1852. A new steamboat was recently consumed by fire near Louisville, and the account which we read of the accident stated that the boat became unmanageable on account of the *tiller ropes* being burned.

In another column will be found a notice of an invention which would prevent such accidents recurring. Some such means ought to be adopted, or tiller ropes discontinued and chains substituted.

## Activity among Inventors.

During the week ending April 10th, there were filed in the Patent Office THIRTY-TWO applications for patents from the SCIENTIFIC AMERICAN office alone, exclusive of a number filed by the branch office of Munn & Co., located in Washington. For the same week there were issued at the Patent Office TWENTY-FOUR patents to parties whose cases were prepared at this office and conducted through the SCIENTIFIC AMERICAN Patent Agency.

The above statistics for a single week shows that the inventors throughout our land are not slumbering.

Friends of the SCIENTIFIC AMERICAN, will you not take the trouble to show it to some of your neighbors and ask them to subscribe for six months or a year? By so doing you will not only aid its circulation, but at the same time you will benefit your neighbors. For the want of correct knowledge upon a single fact on a simple subject, hundreds of dollars may be wasted which could be saved by the perusal of such a journal.

Canada has adopted a decimal currency, which is a move in the right direction, and will greatly facilitate interchange between both sides of the St. Lawrence. The new coins have been prepared in England, and consist of five, ten, and twenty cent pieces.