

New Inventions.

Cast and Wrought Iron Rails.

A writer in the Railroad Journal says, with reference to the quality of the rails upon our railroads, that nothing but prejudice prevents the immediate substitution of cast iron for wrought iron railway bars. The Pottsville Mining Register, in alluding to the matter, says that from experiments recently made by the practical men of England, it is proved conclusively that the strength of cast is only 1-9th less than the wrought article: while the cost is 3-9ths less.

Cast metal resists much better the compression that flattens and exfoliates, the other as in the bars of the Reading railway; and by chilling the top of the cast rail, its resistance to compression and wear and tear might be perfect. The destruction by rust is very much less in the cast article. It is asserted that no cast iron track has ever been laid on continuous bearings, which ought to be an essential condition to fair experiment, because what is most feared, the fracture from percussion, is then entirely prevented. The idea is suggested also that the bars should be cast hollow, giving with the same weight of metal greater depth and strength to the rail.

Besides the difference in the general market value of cast and wrought rails, there would be another important saving, viz., along the route of most interior lines of railway, furnaces may be found to furnish the cast article at greater saving of carriage over the other; whereas iron rolling mills to make wrought rails are comparatively scarce.

[It is well known that cast iron does not oxidize and scale, like wrought iron, and so far as that comparison of their value is carried out, it is favorable to the cast iron. But, before any great change should be adopted in our railway system, fair experiments should be instituted for the purpose of determining the correctness of alleged improvements. The cast iron rail was in use for a long time in England, before the wrought iron rail was introduced, and it is not right to say, that prejudice prevents the introduction of the wrought in place of the cast rail. The ideas thrown out by the Mining Register are excellent and worthy of attention. We hopefully look for improvements to be made in the quality of cast iron. Should not the attention of iron manufacturers and founders be concentrated on this point? Is it not probable that iron, with all the qualities of the wrought for toughness, will yet come forth at once from the smelting furnace? We know of no discovery in the arts that would produce a greater change in social life, than one in the manufacture of iron, whereby its cost would be triply reduced, with its qualities of strength and endurance improved.]

Guano.

In view of the increased demand for this article as the farming season opens, the price has been put up, and many farmers will, in consequence, resort to other manures to a greater extent, perhaps, than they had intended. For Peruvian \$45 per ton is now asked, \$35 for No. 1 Patagonian, and \$30 for No. 2 do. To whatever the Guano may be applied, 400 lbs. per acre is the quantity necessary to ensure a good crop, and with every 400 lbs. 1 bushel of plaster should be thoroughly mixed, and ploughed into the full depth of the furrow, be that what it may.

New Lamp for Locomotives.

The Rochester Daily Advertiser says that Mr. Henry Ward, of that city, in making lamps for railroad locomotives by galvanic process. He plates the parabolic reflectors (which are constructed of Britannia metal) with silver and gives to them, by polishing, a surface which reflects with great power.

The smallest bird of America, is the humming-bird; and of Europe, the golden-crested wren. The smallest quadruped in the world, is the pigmy mouse of Siberia. The most diminutive plant is the Arctic raspberry, which is so small, that a six ounce vial will hold the whole, branches, leaves, and all.

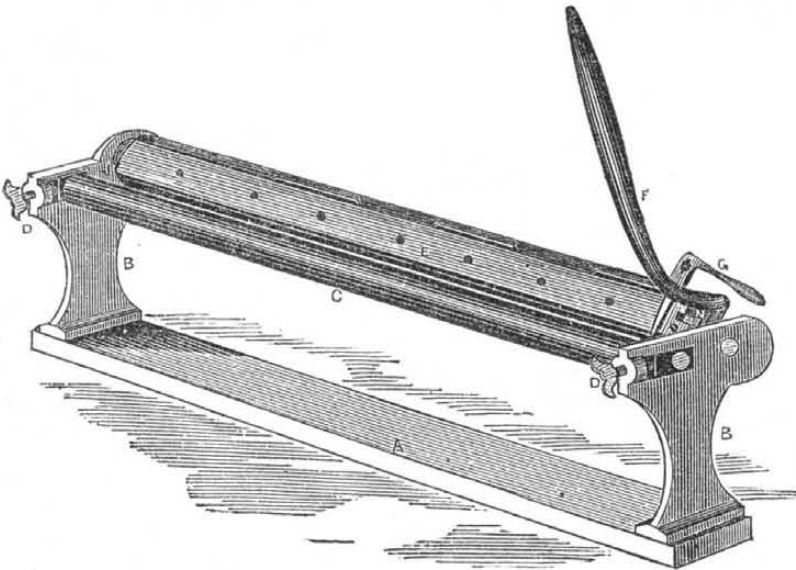
A New Description of Steam Vessels.

For some days past, great excitement has prevailed at Marseilles, by the arrival in that port of an entirely new description of a steamer, and which, if successful, will cause a complete revolution of the present plans of building steam vessels. The vessel is named the "Port de Marseilles," and was built by a M. Lieutenant. It has not the slightest appearance of masts or funnel; in fact, there is nothing to show whether she is propelled by wind, or

steam, or oar. She glides through the water as if propelled by some invisible agency. The propelling power is by a simple lever of sufficient power.—*European paper.*

[The above is a beautiful discovery to many besides ourselves; but it brings to our mind, a simple duty which we have to perform. It is this, to tell many, who believe it is otherwise, that there is no power in a lever. The power lies in the motor—either manual, water, gas, or steam, which moves the lever.]

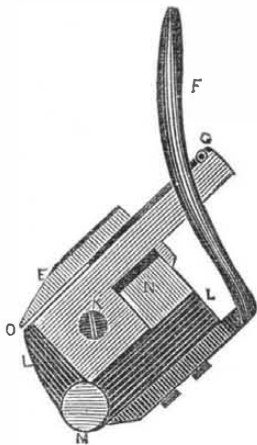
IMPROVED MACHINE FOR TINSMITHS, FOR TURNING LOCKS.—Fig 1.



This improved machine is the invention of Mr. O. W. Stowe, of Southington, Conn. Its peculiar qualities consist of two parts: 1st, The gauge for the exact piece of the sheet of metal to be grasped by the machine to form the lock. 2nd, Making the jaws of the machine, in which the sheet of metal is placed, to close and to open, when the lock is formed, for the purposes of putting in and taking out the sheets rapidly, and holding the sheets of metal firmly while the lock is forming.

Figure 1 is a perspective view. Figure 2 is an end view of the rolling tumbler, with the posts, &c., removed. Figure 3 is a back view to show the wedge bar that opens and closes the jaws of the tumbler. The same letters on all the figures refer to similar parts. A is the bottom plate; B B are the two standard bearings; C is the cylinder roll. It is stationary, except that it can be set nearer or farther from the tumbler, by the set screws, D; E is the top, or moveable jaw; F is the lever to roll over the tumbler with the sheet in it, on to the roll C, to form the lock; G is the handle of the gauge. To form a lock, the sheet of metal is inserted in the mouth O, (fig.

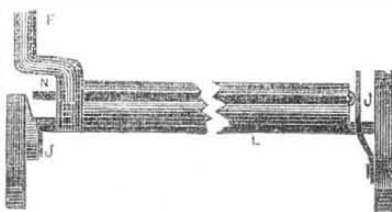
FIG. 2.



2.) of the tumbler, between the jaws E and L, and the tumbler rolled over on its axis, M, pressing the sheet of metal between the tumbler and the roll, C, (fig. 1.) thus making the lock. (The lock means the edge catch, or fold for hinges or stove pipe—this will convey an idea of what it is to those who are not acquainted with the art.) To insure quick work, it is best for the jaws to be wide apart, that the workman may put in and take out the sheets quickly, but unless there was some arrangement to compress the jaws when the tumbler was rolled over, the sheet would fall out. To prevent this, the jaws close, when

compressing, and open to let out the sheet afterwards. This is done by a peculiar arrangement, which we hope to explain clearly. It is this, while the whole tumbler rolls over on its axis, M, the upper jaw, E, has an axis, K, of its own, and therefore has a double motion. It is pushed over on its axis as the tumbler rolls over, and thus it compresses the sheet between it and the lower jaw, L. This is done by a sliding bar, N, (fig. 3) which has a small roller on one end of it. This bar moves on an inclined plane behind, acting like a wedge, and there are two inclined cam rails J J, fixed on the inside of the standards, B, which act as cams to push the said bar into its inclined groove, to raise up the back of the top jaw, E, rolling it over slightly on its axis, to close the said jaw when the tumbler is rolled over; and the lower rail J, pushes back the said bar down its inclined groove, when the tumbler is rolled back, thus opening and closing the jaws for the purpose stated. The upper jaw is therefore resting in and on a bed piece, L, to allow it to move, as explained; the front of the bed piece, L, of the tumbler, forming the lower jaw, as represented by fig. 2. G is the gauge: it is a plate of metal fitting between the two jaws, E and L. It has a number of spiral slots in it, and there are fixed guidepins (not seen) passing through these slots. By moving the handle, G, to the right or left, the

FIG. 3.



gauge or plate of metal is pushed down nearer to the outside edges of the jaws, or farther from it, as required. This is to allow the jaws to grasp only a gauged piece of the sheet of metal, according to the size of the lock. The gauge can be set to any size of lock.

With the exception of compressing the jaws, and the gauge, the rest of the parts are not claimed, but these are valuable and important improvements—every mechanic skilled in the art, will at once see this. Mr. Stowe has applied for a patent. More information may be obtained from him by letter, (post-paid.)

A saddle seam of coal has been discovered near Pottsville Pa. It is 46 feet thick. It is near the top and easily mined.

To Clean Straw Hats.

As the season is now approaching when our milliners' straw business of cleaning commences, we will give not only a few directions in that line, but the whole process, for the more especial benefit of those who are young in the art.

Straw hat cleaning and dressing, is one of the useful arts. The shaping, altering and dressing cannot be taught by words—because these branches of the business are practical, and can only be acquired by experience.—Leyhorn, Tuscan, and fancy braids, which have to be materially altered in shape, are taken to pieces, of two parts, the front and the crown, before they are cleaned. Those which do not require to be altered in shape, are not taken to pieces, but cleaned and pressed entire upon a block of the requisite shape. As the shapes of hats change every year, blocks have to be altered for the purpose of pressing them.

To clean the straw hats, the whole lining and wiring are first taken out: then the most greasy parts are rubbed with soft soap and a clean hard brush, and then steeped in hot water (made soft with a little soda,) for about two hours. They are then well scrubbed with a brush and hard soap, along the run of the braids, until all the grease is removed. The crowns and fronts are brushed both inside and out. All the grease must be perfectly removed, and this is not an easy matter in some fronts. Some are full of oil, which leave a yellow color after the greasy part is removed. It is necessary to rub considerable soft soap on the most greasy parts. When all the grease is removed, they are well washed in hot water—two or three waters are necessary to remove all the soap. They are then left to steep in a solution of oxalic acid of a strength which has a pretty sour taste. Oxalic acid is poison yet it can be tasted without fear, only it must not be swallowed. Oxalic acid can be purchased in the form of crystals, like salts, at any druggist's. The oxalic acid vessel must be made of wood, kept clean, and the liquor preserved, a little being added, dissolved, to keep up the strength, every batch, if required. The hats should steep half an hour in this; it takes out iron stains better than any other acid. It is far better than lemon juice, and some use very sour milk, a very erroneous plan, which spoils the looks of the straw. After steeping in the acid, they are lifted up, on a small rack of wood, on the top of the vessel, to drip, and then (without washing) hung up in the sun to dry. A loop of thread is made with a needle, in every hat, crown and front, to hang them up on hooks. They should be taken down when not quite dry, and by the loops hung on small round poles, to hang in a tight box, for sulphuring. The straws should not be allowed to touch any part of the box, and the box should be large and deep enough to allow an iron pot, with some red coals and some pieces of sulphur, to be placed in it, when all is shut up tight for about 12 hours. A cask, if it is perfectly tight, will answer, only it should be covered with a lid and a cloth placed over that. The sulphuring is a very unpleasant business. After being taken out of it, they are then altered in shape or stitched, when wanted, and then sized with a size made of pure white glue, or size made of boiled parchment, strained through a clean cloth. They are then hung out to dry, and afterwards pressed with damp clean cloths, on proper blocks. The great secret in straw cleaning is, cleanliness. In pressing straw hats, the irons, whether box or common flat irons, should be kept burnished bright on their faces, and clean, with a bath brick, on a board at hand. The pressing should be done with great care, and very rapidly—the iron being used very hot. It requires practice, however, to know the exact heat, and some can use a much hotter iron than others—this is a knack of the trade. Beware of burning the straw, and working with an unclean iron. It would be well for every laundress and housewife, to have a bath brick on a board at hand, when ironing clothes, so as to rub off any starch, or oxide, on the face of the iron. The above directions will be invaluable to many—as the plan described has been successfully employed by one of our oldest and most successful millinery establishments in this city.