WHIPPLE'S IMPROVED CLOTHES DRYER.

The device illustrated herewith will doubtless meet a ready welcome from laundresses, inasmuch as it tends to obviate the use of the stationary clothes line. Instead of the clothes being carried out to the line and there secured, requiring the person to emerge from a warm room,often into cold and blowy weather at the risk of incurring illness, the garments, through the present invention, are secured to lines on a simple frame, which last is then transported bodily out of doors, and set up—an operation requiring but a few seconds. The wooden frames, 5½ feet high by 4 feet wide,

are neatly strung with metallic line, the total length of the latter being about one hundred feet. At the upper left hand corner, as shown in the engraving, a hinge joins the two frames, but in such a manner as to admit of their lower portions being thrown outward, as represented. The other upper corner is provided with a recessed hinge and set screw, as shown at A, and is enlarged below, the recess of the hinge allowing of the entrance of the shank of the screw and the consequent joining or loosening of the parts as desired.

When set up, the clothes, after being wrung out, are attached, and the entire device is then carried to the drying ground and left there until the clothes are dry. This is of much convenience, since it allows of the transporting of frozen garments directly to the fire without requiring their being torn loose from the lines at the risk of injuring them, and admits of the clothes being carried immediately to shelter in case of a sudden shower.

The apparatus is readily converted into an ordinary clothes horse by loosening the screw, A, and securing the hinge, which joins the left hand corner of one frame to the right hand lower corner of the other.

For further particulars, address the manufacturer, Mr. D. B. Chapman, New London, Conn

The Recent Life-Saving Dress Trial in England.

We mentioned recently the remarkable performance of Captain Paul Boyton in making his way to land after having jumped overboard from the steamship Queen, while that vessel was yet two and a half miles distant from Cape Clear, through the support of a life-preserving dress, to exhibit which was the object of his transatlantic voyage. A storm arising, the efficiency of the invention was put to a severer test than the wearer contemplated; but though he was kept in the water some seven hours, during which period he traveled thirty miles, Captain Boyton reached shore in safety, and this despite a terrible buffeting from the breakers.

Since his arrival in England, Boyton has given several exhibitions of the life-preserving capabilities of his dress in the Thames river, attracting large crowds of people, as well as the examination of the Royal Humane and other societies

The latest test to which the invention has been subjected is certainly a crucial one; and although its wearer failed to accomplish completely the task which he had set himself, sufficient, nevertheless, was done to warrant the pronouncing this device to be certainly one of the most efficient of life-preserving apparatus yet produced. Captain Boyton undertook to float from Dover to Boulogne, crossing the English Channel and accomplishing a distance of over fifty miles, within one day. The darkness of the night and inclemency of the weather, coupled with an error on the part of his pilot in not directing him a straight course, prevented the fulfilment of the undertaking; but as it was, the swimmer, after remaining in the water fifteen hours and reaching a point within eight miles of his destination, emerged with clothes dry, temperature of body lowered but one degree, pulse at eighty, and fully capable, according to medical opinion, of remaining afloat at least six hours longer. A repetition of the effort will undoubtedly bring success, though to all practical purposes the same has already been achieved. The credit, however, must in no slight measure be awarded to Captain Boyton's powers of endurance, as it is evident that, while the dress furnished buoyancy for the period above named, it had nothing to do with the rapid propulsion of the individual over the water.

We notice that several of our contemporaries fall into the mistake that the invention is a very recent one. This is not the fact, since it is nearly six years ago that it was patented through this agency, by its inventor, Mr. C. S. Merriman, both in the United States and in most of the foreign countries. In our issue of January 14, 1871, a fully illustrated description of the device appeared, together with an account of its successful exhibition off the Battery in this city.

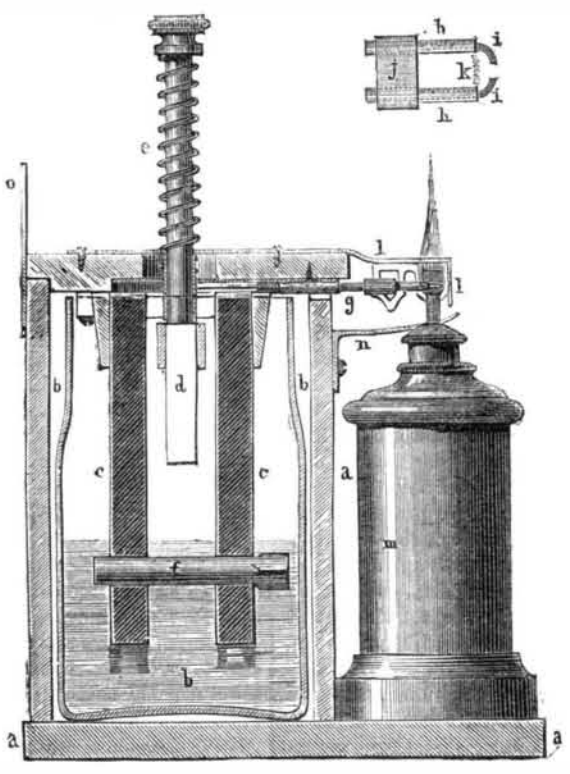
The efficiency of the invention now being proved,it remains to see how long before the steamship companies will defer its adoption. The objection of occupying valuable space cannot be urged against it, inasmuch as it can be folded into the compass of an ordinary overcoat; nor is its cost,probably, to be compared with that of much more common and more elaborate life-preserving apparatus. With the record of its qualities now well known, it certainly appears that the knowledge of such a means of safety being on board would do much to lessen the terrors of the sea to the traveling public, and at the same time, as a necessary consequence, to increase the receipts of steamship lines.

IMPROVED ELECTRIC LAMP LIGHTER.

The lamp-lighting device shown in our illustration is called "the electro-catalytic lamp lighter, and is brought out by Messrs. Voisin & Dronier, of Paris, France. It resembles, in its general features, the well known Döbereiner apparatus, in which hydrogen gas is used to heat platinum sponge. In this case, the igniting material is a thin platinum wire, heated to glowing by an electric current passing through it, and thus igniting a wick, the lower part of which is immersed in benzine which continues to burn until extinguished. Fig. 1 shows the apparatus in sectional side elevation, and Fig. 2 shows the igniting wire in its actual size.

The glass vessel, *b*, is placed in an inclosing casing or box, and is provided with a galvanic element attached to the detachable top, the long carbons, *c*, reaching down into a solution of bichromate of potassa and diluted sulphuric acid, which fills the vessel, *b*, up to a certain point. A zinc plate, *d*, is suspended between the carbons by a sliding spring-acted rod, *e*, guided in a perforation at the top, and depressed by a button at its upper end; so that, when depressed, the zinc plate is immersed in the solution till it comes in contact with a lateral carbon connecting stop, *f*. At the under side of the lid of the vessel are applied two parallel copper wires, *g*, in contact with the sliding rod and the carbons, for transmitting the electric current (produced by the immersion of the zinc) to the igniter at the outside of the casing.

The igniter (Fig. 2) is composed of two copper tubes, *h h*, placed on the ends of the wires, *g*. The copper tubes are laterally connected by an insulated brace sleeve, *j*, and have, at their front end, small rods, *i*, which approach each other. These small rods are connected by the spiral platinum wire, *k*, which is protected against injury by a perforated guard piece, *l*, attached to the lid and extended over the igniter. The length and resistance of the platinum wire



have to be determined in proportion to the galvanic element, and if the wire is of proper length, it will be heated brightly when only one fourth of a square inch of the zinc is immersed in the solution. The lamp, *m*, which is filled with benzine, is placed in front of the apparatus so that the wick is just below the platinum wire, but does not touch it. The lamp is attached to the base of the apparatus, and can be refilled by unscrewing the top part, the wick being held by a forked guide piece, *n*, in the exact position required for ignition.

The whole apparatus can be hung by the ring, *o*, to the wall, or applied in any other suitable manner. The battery solution is sufficient for about 500 ignitions, while the galvanic elements allow about 15,000 before renewal is required.

A NEW LOCKING BOLT.

In the annexed engraving we illustrate a new and simple locking bolt, such as is used for connecting fish plates with railroad rails, irons of railroad bridges, and for like purposes. The novel feature is a mortise made near the outer end of the bolt and through the same, in which two arms or dogs, A, in the sectional view, Fig. 2, are pivoted to a common center, B. Between the arms is arranged a U-shaped spring, which throws them outward. In pushing the bolt through the aperture, and in applying the nut, the arms are easily shoved into the mortise; but when the nut is in place, as in Fig. 1, the arms are thrown out by the spring, their

Fig. 1.

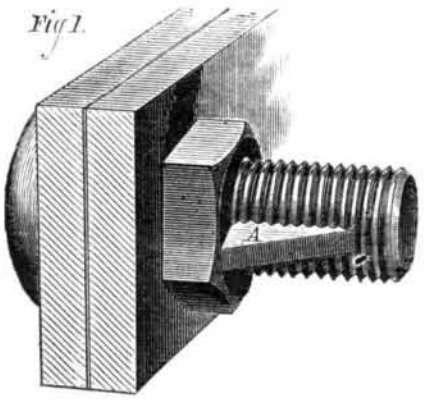
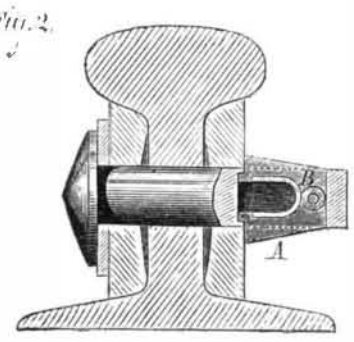


Fig. 2.



square shoulders thus locking the nut. The device was patented January 20, 1874, to Mr. J. C. Tiffany, of Portsmouth N. H

Riveted Structures.

Structures composed of several parts must mainly depend, for their strength and stability, upon the joints or means of connection between them. Thus, in a wrought plate girder, the riveting becomes a very important element of strength, and no correctness of mechanical design or sectional area of parts will avail, if one of the joints happens to be defective or weak. Every joint should, in fact, be equally as strong, at the least, as the material or parts connected, for it is very clear, if it were not so, the sectional areas of the plates or pieces would only be partially called into requisition, and, in fact, the structure would be no stronger than its weakest joint, or its stability would be measurable by the strength of its joints. Taking, for example, a cylindrical boiler, its effective strength to resist the pressure of steam would only be that of its weakest riveted joint, as we are all occasionally made aware of under the distressing circumstances of boiler explosions. This point,in fact,cannot be too strongly insisted upon,for it is obvious that,in constructing such works, there is a tendency to regard the general form,and not every detail; or in other words, the joints and minute connections are only thought of collectively. In every structurerequired for active stability or strength, the details require equal attention and care to that of the general design. As regards iron plates or boiler plates, it is known they have less tensile strength than the same iron made into bars. This is due chiefly to the process of rolling iron into plates of such thinness; and it is also found that a boiler plate is less tenacious across the fiber than in its direction; its greatest strength being about 20 to 22 tuns per square inch, while its least strength in the transverse direction is about 19 tuns per inch of section. In making cylindrical boilers,therefore, it is evidently desirable to put the plates in their strongest direction round the boiler, so that the transverse pressure, which is always the greatest, should have the strongest direction of the plates. It is seldom found that boilers give in their longest direction, and a cylindrical boiler is calculated to have about double the strength in that direction to what it has transversely under a given uniform pressure of steam. The circular or cylindrical form of boiler is the strongest, and has superseded the rectangular form with flat surfaces. It is easily seen that a circular form is the best for resisting uniform pressure. For the plates, though wrought iron is commonly used, steel is rapidly coming into use. The relative strengths of iron and steel are as follows:

Iron	50,000 lbs.
Steel	90,000 lbs.

From which it is seen that steel has nearly double the strength of wrought iron. The recent boiler explosions which have startled the public will, we believe be the means of introducing to a greater extent than hitherto the claims of steel for boiler plates. Let us further examine the conditions of strength in boiler construction; and first as regards the materials and joints: We may here casually refer to the advantage that would arise, in reducing the risks of the calamitous accidents we are constantly hearing of,if periodi-