

**Improved Railroad Rail Joint, with Nut Locking Chair.**

The object of the invention illustrated in the accompanying engraving, is the locking of the nuts of railroad fished joint bolts, by the prolongation inwards and upwards of the lip or lips of the chair, near to or against one or more of the horizontal, inclined, or vertical sides of the nuts, and to furnish also a better combination for a railroad rail joint fastening than has hitherto been used.

The views show the outer or nut side of the joint, and the method of locking the nuts of the bolts, by means of the lip or lips of the chair, and also the form of the chairs. One view is of a joint with a plate chair, with a lip under each nut; the middle portion being turned down upon the crosstie and punched to receive the spikes. The other view is of the joint with a form for a rolled iron chair, with a continuous lip, and a flange, resting upon the tie, punched for the spikes. The two forms of chair, one of plate and the other of rolled iron, are shown separately.

Many other forms of chairs may be made, if desired, of plate, rolled or cast iron to fit and lock any form of nuts, whether square, hexagonal, octagonal, oval, etc., in any position in which they may be placed when screwed up.

By prolonging the lip or lips of the chair upwards between the nuts, or under and between them—the chair being spiked down firmly to the crosstie—the chair will hold the rail from "creeping," without slotting the rail, which is desirable for steel rails.

The fish plate on the nut side of the joint is made without a groove, to avoid the use of washers under the nuts. Upon the opposite side the fish plate is channeled to receive the heads of the bolts, and prevent them from turning when the nuts are screwed up.

It is generally conceded that the fished or bolted rail joint is the best joint known, but, unless the bolt nuts are locked securely and permanently, they will work loose, and as the value and safety of the joint depends upon the plates being held firmly against the sides of the rail, the working loose of the nuts destroys, or very much impairs, the bolted joint. With the nuts locked perfectly and permanently, the bolted joint is the best joint known; without it, it is no better than, if at good as, some others.

As the fished joint is weaker than the rail itself, it should have a bearing upon the crosstie or sleeper; for any settling of the joint bends the plates, strains the bolts, and tends to force off or loosen the bolt nuts. The joint should rest in a chair of plate or rolled iron, to prevent the rail ends from being pounded into the sleeper by the wheels passing over them, and to prevent the hammering of the ends of the rails, in consequence of one end settling, under the load, below the level of the other. By locking the nuts by means of the lip of the chair, it is claimed, the joint is rendered perfect with the least number of parts possible, easy of manufacture, strong, durable, and cheap.

With the joint on the tie or sleeper, and in the nut locking chair described, the outer pair of bolts, commonly used for bolted joints, are unnecessary. The saving of the cost of these two bolts, and of the extra length of plates required for them, will more than equal the cost of the nut locking chair. It is claimed, therefore, that this joint can be furnished considerably cheaper, while it is much better and more reliable, and will last much longer than the four bolted fish joint now generally used.

It is claimed that this nut locking chair can be used for four bolted fish joints already laid down, to great advantage, for if the nuts of the two inner bolts are securely locked by means of it, the joint is safe, and there will be but little, if any, strain upon the outer bolt nuts to force them off; in point of fact the rail joint will be equally strong without them.

The use of a two bolt joint and the nut locking chair permits an increase of the section of the fish plates and the size of the bolts, if desired, and thus strengthens the joint, at a cost still considerably less than the ordinary four bolt joint.

Several of the best railroads in this country have used the chair with the bolted joint, and one of the very best—the Cleveland and Erie—has used the two bolt joint with a chair; but not with a nut locking chair. This alone, it is claimed, was needed to make the joint perfect, and the advantages to be gained, by so locking the nuts of the fish plate bolts, are manifest. We are informed that some important railways will soon introduce this joint, which has met with the approval of experienced railroad engineers.

The improvement is the subject of two patents, granted to G. W. R. Bayley, of Algiers, La., dated December 29, 1868, and March 2, 1869.

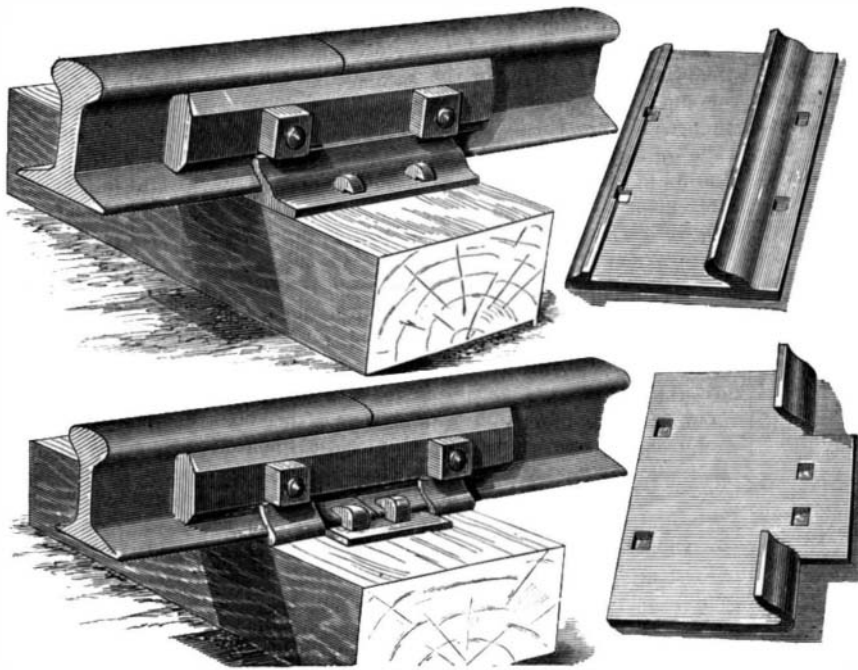
For further information address G. W. R. Bayley, Chief Engineer, New Orleans, Mobile, and Texas Railroad, New Orleans, La.

**Awful Fate of a Balloonist.**

At Paoli, Orange county, Ind., recently, Professor Wilbur made arrangements for a balloon ascension, accompanied by George H. Knapp, editor of the *Orange County Union*. As they were about getting into the balloon, the cord gave way, and they made a spring for the car, but only succeeded in grasping the ropes. As the balloon rose, Mr. Knapp let go, and fell from a height of about thirty feet without serious injury. Professor Wilbur held on, and attempted to climb into the

basket; but was unable to do so and the balloon shot up rapidly with the aeronaut.

At a height of about one mile, the doomed man let go his hold and came whirling to the earth. At the height he had attained, he looked like a small sack about a foot long. As he approached the earth he was coming down feet foremost, then spread out horizontally, then doubled up, turned over, and then straightened out with his head downward. As he struck the earth, he fell upon his head and back. His head was crushed into an indistinguishable mass, and his body was bruised and crushed horribly. The body made a hole in

**BAYLEY'S RAILROAD RAIL JOINT, WITH NUT LOCKING CHAIR.**

the ground eight inches deep, and it rebounded four feet from where it struck.

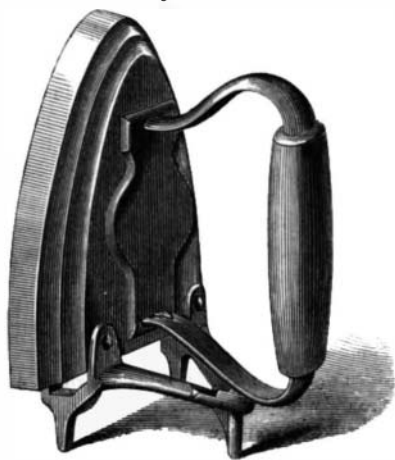
To add to the painful character of the accident, the Professor's young wife and little daughter were on the ground and witnessed the terrible affair.

**COMBINED SADIRON AND STAND, AND COMBINED REVERSIBLE SADIRON AND POLISHING IRON.**

The first named of these new inventions is shown in Fig. 1, and the second in Fig. 2.

In the combined sadiron and stand, the stand is made separately, and riveted to the heel of the sadiron, so that the

Fig. 1



iron stands upright when resting on the stand. The stand consists of three legs—two for the heel and one for the handle—connected by two bows of an approximately triangular shaped frame, having brackets extending under the end of the iron, each having a small stud on which the sadiron is seated. The frame is also provided with projections, extending up along the top side of the iron and riveted thereto.

Fig. 2



The stand is made of malleable iron or any other suitable material, and its attachment adds but a trifling amount to the cost of the iron.

By this manner of attaching the stand to the iron, the former is always with the latter, ready for use. It prevents the smooth face of the iron from being scratched or otherwise injured. The sadiron can be placed on any part of the table, while adjusting the clothes, and will retain its heat longer than when placed on a separate stand, which latter subtracts heat from the iron every time the two are brought into contact.

It is claimed that the attachment of the stand in no way interferes with the ironing, and that it will not, unless greatly overheated, burn the table when placed upon the latter in the manner described, as the supports are so slender in proportion to their length that they radiate off the heat before it is conducted through them to the table.

The combined reversible sad and polishing iron shown in Fig. 2, is very simple and easy to operate. The iron is provided with a spring handle which allows it to be reversed.

The flat face is used as an ordinary sadiron, and the rounded face, which is highly polished, as a polishing iron. This form prevents the polished side from becoming injured in heating the iron, as the flat face only is placed upon the stove or heater for this purpose.

Several reversible irons have been invented, but it is claimed that the one herein described is the most simple and the cheapest yet devised, dispensing with all complications, catches, etc.

Patents for the above inventions have been secured in the United States and Europe. Any parties wishing to manufacture the same on royalty can obtain full particulars by addressing Myers Manufacturing Company, 104 John street, New York.

**Breeding Silkworms.**

The doctrine of survival of the fittest is being enforced by the silk growers of Lombardy, who have adopted the cellular system of MM. Pasteur and Cantoin. Moths and eggs are both subjected to microscopical examination, and only the healthy are used for the purpose of perpetuating the race. This mode of inspection not only confines reproduction to the most vigorous specimens, but it insures the detection of the disease that has recently so virulently attracted the silkworms of northern Italy. Signor Cattaneo, of Milan, states that this disease is caused by the degeneration of the mulberry tree, and it seems that this opinion is well founded, as some trees grown from seed imported by that gentleman, from the north of China—the native land of the mulberry tree—are far more vigorous in growth than the white mulberry tree common in Italy; and their leaves contain much more of the resinous substances which are the nutriment of the worm, and from which the silk is produced. If Signor Cattaneo's view be a correct one it will be necessary to import seed into Europe to re-invigorate the plantations, which are the chief subsistence of the silk worms. Our silk growers of the West will find it interesting as well as profitable to bestow attention on this subject.

**Plants in Bedrooms.**

Dr. J. H. Hanaford, in *The Household*, says that the idea that plants throw off nitrogen in the night to an extent to prove injurious, in any material degree, may have had its origin in the vagaries and speculations of some medical theorists, utterly forgetful of an over-ruling Providence who makes no blunders of this kind. These plants have their labor to perform, so to speak, and we need not trouble ourselves about that, but simply regard all as right.

While the breathing of every living creature, the combustion of fuel, etc., are constantly destroying the oxygen of the air, leaving an excess of nitrogen, the other element of air, (the two gases, oxygen and nitrogen, making pure air,) some means of restoring these relations would seem necessary. This is done by the vegetable creation, the leaves of plants, like lungs, absorbing this gas, and throwing off the oxygen or restoring the purity of the air.

The animal creation and combustion thus furnish carbon in the form of carbonic acid gas to the vegetable, while the vegetable creation kindly returns to us the oxygen in a gaseous form, and the carbon in a solid, in the form of food; an arrangement with which we need not quarrel. This work is constantly going on, illustrative of the wisdom and the goodness of the Great Father. It is a matter of little importance whether this is in vast creation, on a grand scale, or in our sleeping rooms. It may be remarked that it would be possible to fill our rooms with various articles to an extent to leave too little room for air, and thus deprive ourselves of this necessity of life. We can scarcely have too much of it, as it is our life to a greater extent than many suppose. But even if there might be some of the evils referred to, it does not follow that these rooms should be so closed at night as to exclude all of the outward air or prevent the escape of a large amount of carbonic gas, or supposed excess of nitrogen from the plants. The breathing will leave such an excess, even with no plants in the room, which should be allowed to escape.

Such sleepers have more occasion to fear this deadly gas, constantly produced by breathing, than the "night air," so foolishly dreaded.

In short, while our sleeping rooms are so often too small, it may be advisable to have our plants in some other room, with open doors, that they may aid in purifying the air. We may rest assured that they will do us far more good than harm; that this law of compensation is in active operation all around us, and is merely another term for the goodness of the Creator.

**TO VIOLIN PLAYERS.**—A correspondent, Mr. J. R. Little, of Monmouth, Ill., suggests the use of chalk on the fingers of the left hand to prevent their slipping on the strings. Chalk will undoubtedly answer this purpose, and may be found useful to performers whose hands are subject to perspiration.