



Performance of our Iron-clads--The "New Ironsides."

[We take pleasure in publishing the following account of the capacities, invulnerability, and machinery, of the *New Ironsides*, and should be glad to receive accounts of other iron-clad vessels from the officers or others on board.—Eds.]

U. S. S. "NEW IRONSIDES,"  
Off Charleston, Sept. 4, 1863.

Messrs. Editors:—Those who are interested in the success of our iron-clad navy will be pleased to hear of the invulnerability of the pioneer of our ocean iron-clads, the *New Ironsides*. Of the two hundred and thirteen shot and shell that have struck her during the attacks on Charleston, none have caused any serious injury to life or limb, nor any apprehension for the safety of the vessel. The most probable source of danger is from a shot or shell entering the ports. Each port is protected by two port shutters, which are wrought-iron plates that shield the port, on the same principle that the plate covers and uncovers the key-hole of a lock, except that the hinges are on the inside upper corners, instead of the center of the top of the plate, as in the lock. Although these port-shutters are five inches thick, they cannot resist the impact of a shot which strikes them while they cover the ports; and, in proportion to their bending, is the difficulty of working them. The hinges have so little metal around them, that,

a shot strikes them, the shutters almost invariably drop off. Both of these defects, however, can be easily remedied. The rebels have paid particular attention to the water-line and machinery of the ship. The water-line bears the imprints of ten 10-inch solid shot. The most serious damage resulted from two shots striking the same plate, within a foot of each other, and within a foot of the end of the plate. The result was, the partial cracking of the plate, bending it, and forcing it about an inch into the wood-work. It occasioned no leak in the vessel.

The method of fastening the plating to the sides of the ship is very effective. It consists of common wood-screws, put through the plates from the outside, and tapped into the wood, having cylindrical heads countersunk into the plating and flush with the outside. Several of these screw-bolts have been struck directly on the head without causing any damage, whereas, if the ordinary plan of using through bolts or rivets had been adopted, it is very probable that some persons would have been injured by fragments of the bolts being projected inside the ship. Captain Badger was seriously wounded while in the turret of the *Pulapco*, by being struck by one of the bolts that held together the several plates that compose the turret. Several 10-inch solid shot, and one 11-inch, have passed through the unprotected part of the bow and stern; but so much of their momentum was lost in the passage, that they did not reach the wrought-iron bulkheads that cross the ship forward and aft, and which would have effectually stopped their further progress. The 11-inch shot came from one of the guns of the ill-fated *Kewuk*. It was originally a poor casting, and the rebels apparently had to turn one-half of it in a lathe before it would fit the gun.

The appearance of the smoke-stack indicates good shooting on the part of the rebels. A dozen shots and fragments have passed completely through it, all of them within fifteen feet of the deck. One shot would undoubtedly have passed into the boiler, but that it was deflected by the wrought-iron grating in the smoke stack, placed therefor that purpose. The projecting wood-work on the spar deck is torn into shreds, and one-third of the rail is completely carried away.

It is claimed for the *Ironsides* that she is equivalent to any six of the monitors. It is certainly the case that when she brings her broadside to bear, and opens fire on the rebel batteries at a thousand or twelve hundred yards range, the rebels very soon leave their guns and take to their bomb-proofs. They have so much respect for her shelling propensities that, although often at anchor within their range, taking in ordnance or coal, they do not dis-

turb her. An idea of her capacity for distribution may be formed from the fact that, in the attacks since the 7th of April, she has fired 4,439 shells, 3,333 having been fired at Fort Wagner.

Of the machinery it may be said that it combines, with neatness of design and excellency of workmanship, that most essential requisite in the machinery of an iron-clad—simplicity. It consists of two horizontal, direct-acting engines, with one surface condenser in common, and a double-acting air and injection pump to each engine. A double-ported balanced steam slide valve to each engine, cutting off by the lap at two-thirds of the stroke of the piston, and each worked by a link motion, constitutes the principal portion of the machinery. Four horizontal tubular boilers furnish all the steam required. The engine room is the finest of any screw ship in the service, while the fire room is about the most uncomfortable of any vessel of her class. During a late attack, with the fires spread and the furnace doors open, the temperature was 170°. This is, of course, the extreme; the ordinary temperature, however, being 120°. Two blowers with their separate engines, are arranged to supply air to the fires, or to force air on the gun-deck during action. The latter is the only purpose for which they are used. The greatest defect in the ship, not connected with its invulnerability, is the want of ventilation on the berth-deck. The ward-room has the benefit of a windsail and air-ports; but the steerage, in which seventeen officers have to live, has no ventilation whatever. Each room is nothing better than a box. Officers enter their mess-rooms, eat their meals, and then rush on deck to get fresh air. There is not even a windsail, although there are two hatches, communicating with the spar-deck, in which they could be placed. An expenditure of a little time, and less money, applied to the construction of air tubes leading to the blowers, with branches leading into each room, would result in the officers' enjoying health and comfort.

AN ENGINEER IN THE U. S. N.

A Coal Oil Trap.

Messrs. Editors:—The people residing along the Ohio river and some of its tributaries, are much annoyed by the coal oil which is constantly found floating upon the water. It makes its escape from the wells and from the barges used for conveying it to market. The amount thus running to waste is exceedingly great; and it would certainly be a matter of economy if means were devised to remedy the evil. Bathers are also immoderately anointed, much to their disgust; boats of all kinds are besmeared; fish are spoiled; the water is rendered unpalatable, and property is sometimes endangered—as was the case lately at Pittsburgh, when the fireman on a ferry-boat carelessly threw some live coals overboard, a great conflagration being the result.

A simple, cheap, and effective trap for arresting the oil might be constructed in the following manner:—Take several logs of proper dimensions, and at some point where the channel lies about the middle of the river, anchor the logs lengthwise, at an acute angle to the shore (slanting each up stream, and allowing it to float upon the surface), preserving an interval of at least twenty feet between any two of them. This may be done upon both sides of the stream, without obstructing the channel. A few lanterns will be a sufficient safeguard at night, preventing accidents from any passing boats.

Philadelphia, Sept. 23, 1863. F. J. C.

[This is quite a novel, and it would seem a useful suggestion. We have no means of knowing what amount of coal oil is annually lost in the manner spoken of by our correspondent, but it would seem to be large. The hint is worth acting upon by those interested.—Eds.]

Cider Mills.

Messrs. Editors:—Are there any successful patentees of cider mills? Can you put me on their track? Which is the more economical, the sweep or tread-mill horse power, for working a cider mill?

Answers to the above would perhaps be of general interest at this season, and would especially oblige

W. T. B.

Sept. 26, 1863.

[There are many successful patentees of cider mills, but the best way for you to communicate with makers

of them is to advertise. We have not the addresses of manufacturers of such articles. The sweep power admits of a greater variety and more economical arrangement than a tread-mill.—Eds.]

Time to Cut Timber.

A short time since I saw a statement on this subject in a newspaper. I wish to give my own experience and observation for over fifty-five years, constantly working and using most all kinds of timber, more especially oak, ash, and walnut. I have learnt by dear experience, for I have lost much by the effects of worms in my timber, and have found when timber may be cut and have no worms, or powderpost, as it is called. Cut timber from the middle of September to the middle of December and you cannot get a worm into it. October and November are perhaps the best months, and sure to avoid the worms.

You cut from March to June, and you cannot save the timber from worms or borers. May used to be called "peeling time" in my boyhood; much was then done in procuring bark for the tanneries, when the sap is up in the trunk and all the pores are full of sap; whereas in October those pores are all empty—then is the time to cut, and there will be no worms. Whenever you see an ox-bow with the bark tight, there are no worms, no powderpost, and you cannot separate it from the wood; and what is true in one kind is true in all kinds of timber, and every kind has its peculiar kind of worm. The pine has, I believe, the largest worms; and these worms work for many years. I have found them alive and at work in white oak spokes that I knew had been in my garret over twelve years, and they were much larger than at first; they do not stop in the sap, but continue into the solid part. I do not think of buying timber unless it is cut in the time above alluded to.

I have wondered that there has not been more said on this subject, as it is one of great importance, even for fire wood, and especially for shipbuilding, &c. I have already, perhaps, prolonged this article too much. Now I want to inquire of some of the wise of this enlightened age, whence and when do these troublesome creatures come? Have they any parents? how came they in this solid wood? was there an egg deposited that caused the worm, or how did he come into being? We know they are there; and now, will some one please to show us the way, and all about their origin, &c., and they will much oblige your humble servant,

AMBROSE KINGMAN.

Reading, Sept. 8, 1863.

[The above is from the *Boston Recorder* of September 18th. The information contained in it is similar to that published on page 163, Vol. VIII. of the *SCIENTIFIC AMERICAN* (current series). In substance it confirms the views expressed in our columns, as to the fall months being the best for cutting timber. Why timber cut in November or December should be superior to that cut in January and February, we cannot explain. Experience is the best teacher in the first place, but some of our naturalists who have devoted special attention to insects and their ravages upon vegetation, may be able to solve the problem.—Eds.]

The Monitor Turrets.

Since our last article on the subject of some protection for the inmates of the turrets against bolts dislodged by shot, we have received an additional number of communications proposing remedies. Most of them are ingenious and comprise substantially the same ideas that have been promulgated hitherto. We remarked on the first occasion that the inventive talent of the country was equal to the task proposed to it, and the letters since received prove the assertion; it now remains for the sanguine ones to prosecute their plans to a successful issue, so that the country may derive some benefit from their deliberations and discoveries.

The steamboat *Mary Powell*, running on the Hudson river between New York and Poughkeepsie, lately made the run between the two cities in the running time of 25 miles per hour. She is held to be the fastest steamboat in the world.

A steam carriage, which has been running on the horse railroad tracks in Boston, was matched last week in a trial of speed at Nashau, N. H., against a pacing mare, for a stake of \$500.

**Improved Kerosene Stoves.**

The great heat thrown off by kerosene oil in the process of burning has attracted the attention of enterprising men, who deemed that such a waste of caloric was altogether needless. In view of the present high price of coal, it is almost unnecessary to say that every particle of heat that can be usefully employed should be put to some purpose; and when the same lamp that lights the apartment will also warm us and permit cooking to be done by it, it will be seen that a great saving is effected in domestic economy. These lamps are a realization of the true principle

Fig. 3 is another form of this heater, which is supplied with three burners, and of course gives a proportionate amount of heat. These stoves are extremely useful for family purposes.

The tedium of the sick room is often relieved by a cup of tea or other light beverage, and frequently gruel and similar nourishment is required by nurses for their patients when the usual facilities for making it are not at hand, or the lateness of the hour interferes with the speedy preparation of it. For all such purposes, and indeed many others not specified, these lamp stoves will be found an invaluable aid and con-

plow, and might as well be removed, if it were possible to do so without destroying the efficiency of the tool. The plow herewith illustrated is an improvement on others not so constructed, in that the landside is virtually without friction. This feature is attained through the introduction of a revolving wheel, A; this wheel is smooth on its exterior, and is firmly fastened to the mold board of the plow, as shown clearly in Fig. 2; A being the revolving landside, and B a metal disk let into its face. The landside is held to the mold board by the screw, C. It is believed by the inventor that this constitutes an im-

Fig. 1

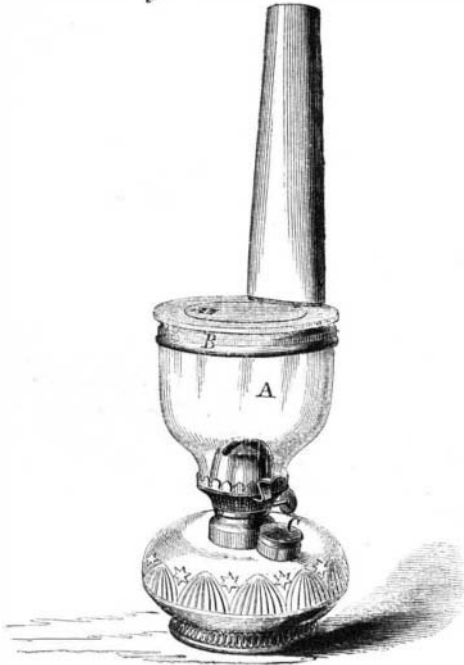


Fig. 2

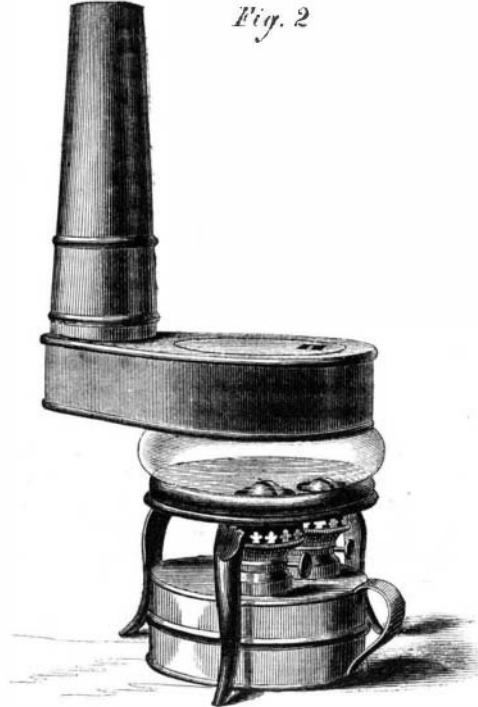


Fig. 3.



**EDDY'S KEROSENE STOVES.**

of invention, which is, metaphorically, to produce two grains of corn where but one was formerly attained. We do not mean to say that this invention is adapted to raising crops, but that the range of its uses is so wide as to authorize the above simile. It is astonishing to those who have never investigated the subject, to witness the intense heat generated by burning kerosene, and the accompanying engravings represent a new lamp stove invented for the purpose of taking up in a useful manner the caloric which in ordinary lamps is radiated from the chimney and virtually lost. The engravings explain themselves; Fig. 1 having a glass shade, A, surmounted by a metallic band or rim, B, in which is a hole covered with a circular plate, as in all stoves. The band, B, has a nozzle at the back, on which the chimney fits. The shade can be removed the same as in all other lamps, and a chimney of the usual construction applied when needed. In the body of the lamp there is an aperture closed by a brass cap, C, through which opening the lamp may be filled when the oil is exhausted.

venience. Mr. Eddy is about to obtain other patents on these stoves to cover certain points omitted in his first patent.

This invention was patented through the Scientific American Patent Agency, on April 7, 1863, by Wm. T. Eddy, of West Hoboken, N. J. For further information address Leslie & Elliot, 494 Broadway, where the article can be had.

portant improvement in plows; it takes off one-third of the draft, and its efficiency and utility will be fully apparent on a trial. An ordinary landside can be attached at any time if required. Large numbers of these plows are now made at Binghamton, N. Y.

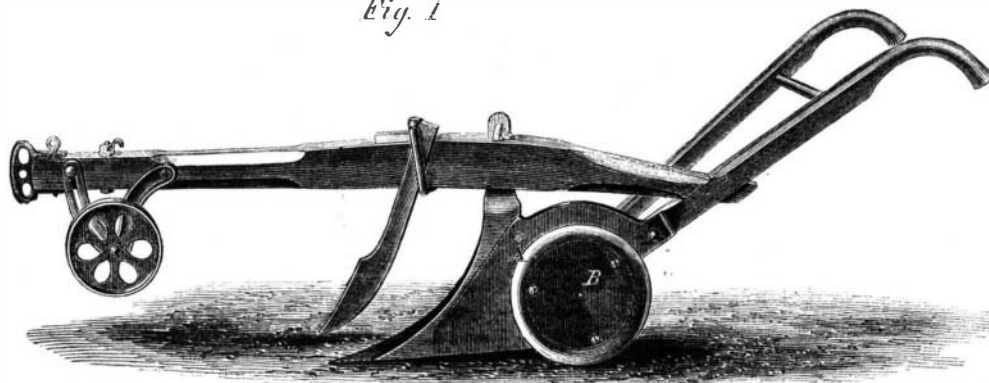
This invention was patented on March 17, 1863, by Samuel J. Olmsted, of the above place. Further information concerning it can be had by addressing the assignees, Ayres, Olmsted & Weed, Binghamton, N. Y.

**Improved Plow.**

The fatigue on the team and the labor of guiding

WONDERFUL SCARCITY OF ICE.—Apropos of the

Fig. 1

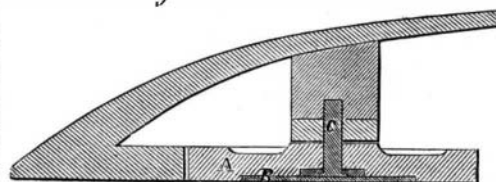


**OLMSTED'S IMPROVED PLOW.**

large and heavy plows in new soil is very great. This is owing in a measure to the great surface of the

scarcity of ice, one firm in Philadelphia advertises "5000 tons of ice fourteen inches thick and upwards, frozen at a low temperature, &c." How is this? We thought there was a "terrible" scarcity of the article—so hard to be procured that it was worth two and even three cents a pound; we have paid 5 cents for it ourselves by the small quantity; and we heard that one person in Philadelphia paid \$40 for enough to preserve a deceased person. Now we have 5000 tons advertised as the most probable and matter-of-course thing in the world. How indignant ice-men were when charged with complicity with one another to sustain their prices. And what an abused set of business men they were, to be sure! When the season is nearly over, it is found that one firm alone, in a city remote from the great ice depots, has a surplus of ice amounting to 5000 tons. When the cry of "Wolf" is raised again, the public will know just what it means.

Fig. 2



landside which has to be drawn or driven through the soil; while the landside is necessary to the construction of the plow and an assistance in running a straight furrow, it is of no further utility on the

The value of the personal property and real estate in the State of New York is \$1,454,454,817. These figures are derived from the State tax list, and are certified as correct by D. R. Floyd Jones, Lieut. Governor,