

**IMPROVED UPENDING TONGS.**

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(See page 208.)

The following is the substance of a verbal description given at the above meeting of engineers, and it will be seen that Mr. Head deals with the question under an entirely new aspect.

A single shingler, furnished with a high pair of tongs, can easily manipulate under a hammer, puddled balls weighing 2½ cwt., including upending them. A pair of shinglers, assisting one another, can, with equal facility, deal with balls up to 5 cwt.

But modern rotary furnaces are capable of producing as much as 20 cwt. per heat, which must be dealt with in one mass. There appears to be no way of expelling the cinder from crude wrought iron, and of consolidating it, more effectual than the old process of shingling, providing it is done expeditiously. But this becomes extremely difficult with weights greater than those mentioned, unless means be devised for assisting the men with power, and admitting of their working at a reasonable distance from the heated mass.

The piece of mechanism at present illustrated will, it is hoped, afford a solution of the difficulty.

When the oval-shaped ball is tipped from the bogie upon the anvil, it is first necessary to give it the form of a parallel-roped. This is intended to be done by three men acting with suspended hooks, and turning the piece over a quarter of a revolution after each blow of the hammer. The bloom is prevented from escaping sideways by a roller skirting one side of the anvil, and is just clear of the hammer head when it falls. Thus far the operation is a simple one, and such as may be seen at many forges. But the effect of the repeated blows is not only to consolidate, and to give a square section to the bloom, but also to elongate it. To prevent it from becoming unmanageable in this respect, and to flatten the ends it now becomes necessary to up-end it, and for this purpose the improved tongs are brought into requisition.

Their construction will be readily understood from the drawing. They are suspended, by a chain passing over a pulley, to a small steam-winch on the hammer-platform, and worked by the hammer-driver. At the point of suspension, between the tongs and suspension-chain, is a small pair of subsidiary tongs, connected with the former by universal joints; and with the latter by a nearly horizontal sling chain. Their effect is to give a self-gripping action to the main tongs, the amount of the grip being exactly proportionate to the weight to be lifted. In up-ending the piece, two men stand, as shown in the drawing, at the end of the tongs. Each man takes hold of one of the handles with one hand, and of a cross-bar with the other. The object of the cross-bar is partly to afford a fulcrum to act against in opening the tongs (for they need not concern themselves about closing them), and partly to give a better purchase in bearing down. The winch really does the whole of lifting, and of gripping.

The points of the tongs are formed of conical centre-pieces of soft steel, which can be readily changed, according to the size of the blooms under treatment, or when worn out.

In this way, blooms of great weight can be side-hammered, up-ended, and put upon the bogie with a minimum amount of labour, and of exposure to heat.

The whole apparatus has been fitted up at Messrs. Fox, Head & Co.'s Iron-works, at Middlesborough, and seems to answer its purpose well.

**THE ELECTRIC PEN AND BATTERY.**

(See page 205.)

We regret that the letter-press for this illustration has been mislaid, and as our Editor is absent, its publication must be deferred; it will appear in a future number.

**THE UNITED STATES AND THE WAR.**—It has been ascertained that Turkey has received over 300,000 stand of arms from the Providence Tool Company within the past two years, under a contract made with that company to furnish 500,000 Peabody guns—a breechloading rifle similar to the Martini-Henry. The rifles are still being manufactured for and delivered to the Turkish Government, several officers of which have been in the country for some months past superintending their manufacture. The Turks also have contracts with various firms in the country for 200,000,000 rounds of metallic cartridges. Russia, it is stated by the same authority, has also received a good supply of arms from America, including a large quantity of revolvers from the Colt Company.

**A GUIDE FOR SAWING LOGS.**

(See page 205.)

Some have asked for a method by which inexperienced persons may be able to saw logs, or shingle blocks square at the ends. It is very easy for beginners in the art of sawing to saw these uneven, and to do otherwise is almost impossible. There are several reasons for this: one is, if the saw is not set truly, it will run to one side; old sawyers, with great trouble, prevent this by constant pressure on one side of the saw. Another reason is that new sawyers cannot keep the handles of the saw steady and upright, but permit it to "wobble" about, and at every "wobble" the cut goes to one side. But with a guide to lead the eye, almost any person can, by using care, saw a log squarely at the ends. Such a guide we have occasionally improvised for "green-horns" at sawing, by taking a flat hoop of a flour barrel, and tacking it to the log with two shingle nails, as shown in the illustration. Then a narrow cut should be made on the top of the log with the ax, for a starting point, and with a saw properly set and sharpened, it will be easy to follow the guide and saw a square cut.

**A HANDY FRAME FOR SAWING WOOD.**

(See page 205.)

G. McAdam, of Egmondville, Canada, sends a draft of a very handy sawing frame, contrived by Mr. Joseph Stevenson, Egmondville. This frame has, in this locality, altogether superseded the buck saw. With one of Boynton's cross-cut saws, there is no trouble to cut cord wood; the end where the saw is inserted in the pendulum should work in a slide. The accompanying engraving very clearly represents the frame above mentioned, so that one could be readily constructed from the illustration without the need of any further description.

**CANADIAN PACIFIC RAILWAY.**—The track on this road has been laid for 35 miles from the eastern terminus at Fort William on the Kanimistiquia river, two miles from its mouth in Thunder Bay. At Fort William a wharf has been completed, and a substantial stone roundhouse, repair shop, storehouses, and other buildings are in progress, including dwellings for the railroad staff. A branch line has been "located" about four miles long to Prince Arthur's Landing.

**A FRENCH INDUSTRY.**—A peculiar industry has recently come to grief in Paris. An establishment was organized for the purpose of breeding maggots. The means by which the "god-kissing carrion" was encouraged in the process was very simple. Over the soil there were spread large quantities of stale fish, dead lobsters, odorous poultry, and other refuse of the markets, as much as half a ton of large fish being taken on the premises in a single day. This stuff was soon attacked by the maggots, which in time were carefully picked out and packed in casks of galvanized iron, and finally were sold for fish bait and chicken feed. The remaining refuse was converted into manure. It may well be supposed that the neighbors objected to the smells from the establishment. Moreover, the production of maggots was not confined to the premises; the flies roamed round and deposited the larvæ upon any exposed food in the vicinity. There was a little doubt as to whether the flies came within the scope of the sanitary laws, but at last the authorities ordered in the police and stopped the manufacture.—*Min. and Sci. Press*, xxiv, 279.

**TO PREVENT STEEL FROM OXIDIZING DURING TEMPERING.**—Small articles in steel are said to be preserved from rust while being tempered by giving them a coating of ferro-cyanide of potassium. For this, two parts of finely powdered charcoal and one part of ferro-cyanide of potassium are boiled up to a thick paste with a solution of gelatine or strong glue. After warming them, the articles are dipped into this mass, dried, dipped again, and so on, until the coating is the twelfth of an inch thick. The articles can then be exposed to a coal fire; heated to redness, and tempered without fear of rusting.—*Iron*, ix, 556.

**FIRE PROOF CONSTRUCTION.**—The frequency of disastrous fires recalls a suggestion of the late Hiram Powers, for rendering buildings comparatively fire-proof at a small cost. It was to place a layer of sheet iron or tin between the joists and the flooring. The difficulty of igniting and consuming a plank lying upon the ground without a draft underneath is well known, and Mr. Powers contended that the plan he proposed would localize a fire to one apartment quite as well as it would be in European houses by the concrete or plaster in which their floors are laid.—*Bulletin*, xi, 139.

**FOUNDRYMEN and Machinists** can get all sizes Pattern Letters and Figures to put names and dates of patents on patterns of iron castings, of H. W. KNIGHT, Seneca Falls, N.Y.