

Shoes, 5 lbs., used for shoes again, sold for old iron.

A correspondent of Mr. Simmonds, editor of the *Technologist*, London, states that a foreman of the bindery department of Messrs. Harper & Brothers came in one morning with a bar of gold valued at \$307½, the proceeds of the gold dust swept from the floor and wiped off on rags used by binders during three months. This was a few years ago. He further states that the gold sweepings were worth \$1,500 a year; shavings from paper, \$5,000; shavings from pasteboard \$700; scraps from leather \$150; making in the aggregate \$7,850.

Waste.

There must be, of necessity, a per-centage of loss in all the material transactions of every day life, whether these be carried on in the workshop, the counting-room, the kitchen or the laboratory; but this inevitable waste can be so far reduced by good management that it amounts to but little in the course of the year. Recent observation has convinced us that the loss in large workshops must be considerable, for in a great majority of cases we have seen materials lying about under foot—bolts, nuts, washers, kicking around in the mud out in the yard, new work exposed to injury from the elements, tools misplaced, essential articles, or tools necessary to the perfection of certain parts of the work at great distances from each other, and an infinite number of abuses which, although small of themselves, when summed up, make a grand total lost at the end of the year. As the thirty-second part of an inch too little on one piece of a steam engine, a sixty-fourth on another, and as much on still another will result in great derangement of the functions of the machine, so infinitesimal waste, continually occurring, is the representative of hundreds of dollars for which there has been no return. No matter what the nature of the trade or manufacture, it is very certain that a material reduction of the expenses of every department can be made by careful attention to the minor matters, and these remarks are made with the hope that all interested will give them attention.—*Scientific American*.

Enormous Casting, Sheffield.

We have to record, says the *Sheffield Telegraph*, the casting of a 160-ton anvil block, which was successfully accomplished on Friday, at Messrs. T. M. Stanley and Co's., of the Midland Works. The casting shop in which the monster was brought into shape and form was that in which the previous castings had been made. In the centre of the floor a great pit was dug, and in this the mould was formed, the anvil being cast with its face downwards. The mould was 12 ft. square at the base, and 11 ft. 6 in. deep, and it was estimated that nearly 170 tons of iron would be required to fill it. At intervals outside the shop were five furnaces, and at six o'clock on Friday morning these commenced to pour their molten contents into the huge chasm, and continued until about five o'clock, when the operation was declared to be successfully completed. The scene in the casting shop was most animated. From four or five different points, streams of liquid fire were slowly rolling to the

edge of the pit, where they fell amidst showers of starry sparks into the vast mass beneath. A metal rod was thrust through the mass to test its perfect liquidity, and, this having been satisfactorily proved, the top of the pit was carefully closed, to be opened no more until the metal has cooled, which will probably be in about seven weeks.

The anvil is intended to be placed in the gun manufactory of Messrs. Firth, which is close to the Midland Works, on the Sheffield side of the second railway bridge. The predecessors of this anvil are fixed in an immense and admirably arranged forge, where seven huge Nasmyth hammers are continually employed in the forging of guns, and the great shafts and cranks of marine engines. The "160-ton" will be placed in a forge that is now building at the corner of the works nearest the railway. The distinguished stranger will be amply provided for, as one of his weight and substance should be.

The block will have to sustain the blows of a 25-ton steam hammer (Nasmyth), which will be employed in forging the 600-pr. and 300-pr. guns that Messrs. Firth are making for Mr. Whitworth.

A New Alloy.

A new alloy, described as applicable to the manufacture of all metal articles, bells, hammers, anvils, rails, and non-cutting tools, has been patented by Mr. M. H. Micolon, of Paris. The alloy consists of iron with manganese or borax. The patentee takes 20 parts of iron turnings or tin waste, 80 parts of steel, 4 parts of manganese, and 4 parts of borax; but these proportions may be varied. When it is desired to increase the tenacity of the alloy, 2 or 3 parts of wolfram are added. When the cupola is ready, the iron and steel are poured in, and then the manganese and borax; finally, the vessel is filled up with coke; the metal is thus in direct contact with the fuel in the cupola, and by quickly running the fused mass into moulds, bells which possess the sonority of silver, whilst the cost is less than bronze, may be obtained.

Friction Match Manufacture.

One firm in Boston, U. S., use 5,000 cords of wood per annum, and manufactures 14,440,000 matches per day. Under the new war tax each bunch requires a one-cent stamp, or a daily tax of \$1,400—nearly \$450,000 per annum. The *Scientific American* estimates that the Government will derive a revenue from this branch of manufacture, of not less than \$3,500,000 per annum.

Improvement in Fire Grates.

A correspondent of the *Scientific American* writes:—"If some one of your numerous readers will produce a simple and convenient device for raising and lowering the fire-grate in our common cooking ranges, he will confer a public favor, and find a ready sale for it. Range fires are placed some 12 to 15 inches below the kettle bottoms, which at times is necessary for the purpose of heating the ovens and water-back. But it daily happens in the work of the kitchen, that a sharp heat is wanted at the top of the range, and although a sufficiency of coals may be burning on